inside

It's a rare scientist who embarks on a new field of inquiry past the age of 60. But **FRANCIS CRICK**, discoverer with James Watson of the structure of DNA over 30 years ago, feels rejuvenated by the Californian sun (page 11).

When drought threatens half of Africa with starvation, it may seem perverse to launch new research on farmland flooding. But a recent conference at St Andrews University did just that, concentrating on the need to develop new strains of **AMPHIBIOUS PLANTS** to produce foodcrops in a different kind of hostile environment. Professor R. M. M. Crawford reports (page 12).

PAPEN, William Buckley says all the need for a more effective relationship between higher education and industry while Edward Gallie reflects on American and European parallels (pages 14 and 15)

The cuts, CHRISTOPHER BALL believes, were "a heaven-sent opportunity to review our priorities" in higher education. As this suggests, he is committed to constant and consistent change and review. M. L. Shattock reviews the collection of essays *Fitness of Purpose* (page 16).

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The medieval head-count
Tony Tanner on *The Knowledge of Ignorance*
Class of '83: the second year

TIMES PAST — THE TIMES

HIGHER EDUCATION SUPPLEMENT
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Anti-business snobbery?

Is higher education guilty of anti-business snobbery? The recent Green Paper did not make this accusation directly; it simply said that higher education must beware of the danger of such a mentality. But there can be little doubt that this charge, or some broader accusation of aloof impracticality, is regarded by many people at Westminster (not all Conservatives) and in Whitehall, in industry and business, and even among ordinary voting citizens as the most damaging of the criticisms routinely levelled at higher education. However unfair or inaccurate, this image of higher education standing aside from the furious economic struggle is very persuasive. It is an image that higher education must dispel.

The charge of indifference or even hostility to business often seems to be more about what higher education represents than what it does. The list of higher education's contributions to economic development could be as long as that of Don Giovanni's conquests — indeed it is! — but still the suspicion would linger among some with political and industrial power that higher education is withholding its [illegible] from the values that underpin business enterprise. So it is this [illegible] rather than [illegible] the charge of [illegible]

[illegible] for higher [illegible] and some other colleges in pioneer courses, are implicated in the decline of the manufacturing sector which to many appears, often [illegible] an entrepreneurial position at Westminster and in Whitehall. Higher education is accused in some vague but persuasive sense of having encouraged the cult of the gentleman (or lady) scholar who is profoundly distasteful of the grubby world of commerce.

The trouble with this broad-brush cultural analysis is that it depends almost entirely on striking examples and telling anecdotes — and similarly striking examples and telling anecdotes can often be accumulated as easily to support the contrary case. Oxford and Cambridge may have been rooted in a pre-industrial world, but all the great civic universities are very much the products of the industrial revolution and most were established through the initiatives of civic and business leaders. Neither piece of history, however, proves that Manchester is closer to the world of industry today than Cambridge. The present evidence suggests that the relationship between the university and the growth of high-technology industry in Cambridge is particularly close.

So cultural analysis of the roots of higher education's alleged anti-business bias needs to be treated with great scepticism. If university graduates once seemed reluctant to go into industry and commerce, they were simply reflecting the current prejudices of the social classes from which the bulk of them came. Today students are no longer drawn so exclusively from the upper and professional classes with their traditional contempt for trade, and the end of empire and the temporary eclipse of the social state have diminished the number and downgraded the status of those careers that once seemed more noble than a job in industry. Cultural attitudes towards business are probably changing very fast, especially among the young.

Certainly every government since 1951 Conservative or Labour, has seen the growth of higher education very much in the context of economic development. In turn higher education [illegible] and universities, both as types of institution invented by post-war governments. Of course a very [illegible] traditional universities it does pursue courses that seem very remote indeed from the world of the gentleman-scholar and very close to the values of industry.

Of course there is a sliver of truth in the grumbles about anti-business snobbery, in two quite different senses. First, the charge contains the truth of a truism. Those who choose academic careers no doubt value different things from those who choose to work for a large private corporation or public bureaucracy. For example, they are presumably attracted by the personal and direct contact they establish with their students and by the intellectual freedom they enjoy in their research. Maybe university and polytechnic teachers communicate their own preferences to those they teach. But their cultural counter-example is rarely likely to be powerful enough to deflect the hot-blooded entrepreneur from his/her course. Certainly its questionably negative influence is insignificant beside the positive contribution higher education makes to would-be entrepreneurs by providing them with the intellectual and technical tools they need for success.

Second, the charge of anti-business snobbery as opposed, for example, to that of an anti-industrial ethos focuses on a narrow ideological issue. The complaint is not that higher education does not make a sufficiently effective contribution to industrial development; nor even that the ethos of higher education is indifferent to the values of industrial development. It is that higher education does not acknowledge its responsibility to proselytize for the values of "wealth creation", today's code for worship of the market in private profit as the only genuine source of national wealth.

Higher education is unable to offer its full-hearted allegiance to "wealth creation" in this narrow ideological sense for obvious reasons. For a start the logic of its own growth over the past 30 years contradicts this naive thesis. Universities since 1919 have become increasingly dependent on public funds, and polytechnics have always been public institutions. Not crucial contributions to industrial development.

But perhaps we can [illegible] more important [illegible] "wealth creation" is that its mission to inquire into the truth makes it difficult to deny the complexity of the modern economy. Economists, historians, engineers and scientists know too much to accept the simple one-cause analysis of Britain's shortcomings that lurks behind the phrase "anti-business snobbery". They know that under modern conditions where private and public sectors interpenetrate each other in a thousand ways economic development cannot depend exclusively, or in some cases even mainly, on the operation of the market in private profit. They may even feel irritated that because they remain sceptical of this particular interpretation of "wealth creation" they risk being stigmatized as anti-industry.

This row will run and run

There is nothing more certain to close ranks in higher education than a comparison of performance between universities and the public sector. Even those who would normally admit to doubts about their own institution suddenly become stout defenders of the faith, especially when the comparison is being made by academics on the other side of the binary line, who might be thought to have an axe to grind.

It is inevitable, therefore, that someone in a university will drive a coach and horses through the conclusions drawn from Mr Tom Bourner's work at Brighton Polytechnic on performance indicators in higher education. The contention that polytechnics and colleges seem to be doing better than the universities in terms of the value-added to the student will not remain unchallenged for long, despite the thoroughness of the regression analysis.

Value-added, after all, is not easy to measure where higher education is concerned. A levels are a notoriously unreliable guide to academic potential and even the apparently clear link on both sides of the binary line between high unit costs and high examination grades is not as straightforward as it may seem at first sight. Above all, despite the scrupulously matched data, institutions are not part of a controlled experiment. They are dealing with different types of student and it does not necessarily follow that they are entirely responsible for academic performance, or that the two sectors would not produce similar results if they took each other's students.

However, this is the world in which higher education is going to have to live. The Government has signalled its determination to compare performance and, at a time of ever-shrinking resources, the outcome of such exercises may have a dramatic effect in years to come. Those who find themselves being assessed may not like the methods chosen but, in these early days when agreed indicators have yet to become established, they will have to accept that judgements are going to be made on the basis of the data available. In this case, the results will be welcome reading for the public sector and for the more expensive subjects, but the argument is far from over.

The survival of Gaelic

Gaelic is the most beleaguered of Britain's indigenous languages. Like Welsh it has to coexist with English, the world's most dynamic language. Unlike Welsh it does not enjoy an intimate association with the cultural identity of the nation in which it is spoken. English, or Scots-English has been the language of the majority in Scotland since the Middle Ages.

But the speech by Mr George Younger, the Secretary of State for Scotland, to a conference on Skye last Friday showed that Gaelic is not without powerful support. Although as a (fairly) loyal member of Mrs Thatcher's Cabinet Mr Younger was unable to promise a strong central initiative to protect Gaelic, he did demonstrate successfully his sympathy.

In the cruel calculus of English speakers Gaelic faces a straightforward dilemma: whether to decline into a "museum" language that retains that peculiar beauty of otherness and so is loved by Edinburgh and Glasgow intellectuals; or to try to maintain and extend its position as an everyday language of the people of the western isles. This would require constant modernization of Gaelic and the import of neologisms that in the eyes of some might undermine its ancient charm. Language as culture or language as communication? Even English faces that dilemma, but as a matter of taste and style. For Gaelic it is a question of forms of survival.

Laurie Ta

The Old D

Dear Professor Lapping,

I'm so sorry to bother you [illegible] your research activities, [illegible] now the weather's taken a [illegible] better, but as I explained [illegible] wrote it is obviously important [illegible] department is properly [illegible] the university's Three Six [illegible] It is with this in mind that [illegible] formed Committee for Public [illegible] Face on What Looks Like [illegible] Modest Amount of Departure [illegible] search, has asked me to [illegible] points arising from your recent [illegible] our Research Activities [illegible] naire.

1. Present Publications. You were good enough to [illegible] articles which have resulted [illegible] one year's sabbatical leave [illegible] were:
"Reading *Dallas*: the decoding of Miz Ellie", *Media, Texts* [illegible] (Amsterdam) Vol 1. No. 1, [illegible]
"The Social Origins of [illegible] Youth Club Leaders", (co-author [illegible] Ken Hipstock, Rosemary Wake [illegible] they appear to be the same [illegible] were included in last year's [illegible] Would you be so kind as to [illegible] your comments on this [illegible] Perhaps they are updated [illegible] the originals?

2. Favoured Research Techniques. Under this heading, the Committee decided to make a minor amendment to your own entry, so that it now reads: "Highly detailed and very systematic analysis of [illegible] of written material, including documentation, specialized archive sources, and relevant data-banks". The general opinion in the committee was that this more adequately represented the distinctive methodological approach than your own phrase: "[illegible] ping in to the library from time to time".

3. Future Research Intentions. Thank you very much for allowing Committee to have such a detailed account of your future research intentions. You will recall that you described these in the following terms: "*A Hermeneutic Inquiry into the Theme of 'Nostalgia' in French Culture with Particular Reference to 'Nostalgie de la Boue' in Marcel Pagnol, 'Nostalgie de la Mère' in Marcel Proust and 'Nostalgie de la Parole' in Marcel Marceau*".

After very careful consideration this proposal by our newly formed Committee for Making Existing Cultative Research Look More Policy Oriented, it was decided by a majority of one that your [illegible] might be slightly "refocused" [illegible] to retain your central concern [illegible] past while simultaneously [illegible] practical pay-offs. The Committee accordingly modified the title to *Effectiveness of the Youth Training Scheme in the West Midlands*.

May I take this opportunity to [illegible] how much we all look forward to seeing you next term.
Please pass on my best wishes to [illegible]
Lapping

D QUINTOCK,
Acting Chair.

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The Times Higher Education Supplement

August 2, 1985 No 665 Price 65p

Three reprieved as Herts loses teacher training

by John O'Leary

All but one of the threatened teacher training institutions were reprieved by the National Advisory Body this week. Only Hertfordshire College of Higher Education is now recommended to lose its remaining courses.

The NAB board voted overwhelmingly to spare the College of St Mark and St John, Plymouth, and then narrowly decided on the same course for North Riding College, Scarborough, and Portsmouth Polytechnic. The body's teacher education group had proposed that all four should lose their training courses.

Places will be cut from non-vocational courses throughout the public sector to accommodate the Government's plans for increased teacher training recruitment nationally. But civil servants at Monday's board meeting revealed that some extra money will be provided next year, as the NAB had requested, to help fund the increases.

The extent of the extra funding is likely to be known before the NAB committee meeting next month, which will make the final recommendations on the allocation of teacher training places. That meeting is certain to hear appeals on behalf of Hertfordshire College, which could not survive the loss of teacher education.

Board members rejected a late proposal from Hertfordshire County Council to transfer the college's courses to Hatfield Polytechnic. A letter from the county education officer, Mr Donald Fisher, suggested closing the college on condition that Hertfordshire did not lose its only remaining training courses. But the board was not prepared to give the places to Hatfield, which has no teacher education.

The College of St Mark and St John was reprieved after further evidence was given on the quality of its courses and a closer relationship with the Devon education authority explained. Its allocation of places is yet to be determined but the other voluntary colleges will be expected to provide the necessary number.

North Riding College was considered to have a strong regional case for survival and was vigorously supported by Leeds University, which validates its courses. Portsmouth Polytechnic, which will be asked to expand its teacher education to a more viable size, had convinced Mr Christopher Ball, chairman of the NAB board, of its potential on his visit last week.

Despite reservations expressed by the NAB committee, the board approved allocations for all four years covered by the Government's last plans for teacher education. Some 550 extra places will be made available in colleges and polytechnics next year and comparable cuts will be sought from courses which are not in the NAB's "preferred programmes".

Some polytechnics without teacher training courses have already warned that they will oppose cuts in their student numbers. But the board decided that those involved in teacher education could not be asked to offer up all the necessary places.

Mr Ball said after the meeting that the board had faced some hard decisions and had accepted the majority of the teacher education group's proposals. "The four colleges at risk are bound to attract most attention, but much the most important part of the exercise was the group's work in reorganizing secondary training," he said. "I am very content with the outcome."

Total teacher training numbers in the public sector will rise from the present 11,000 to more than 13,000 in 1989. During that period the voluntary colleges' share will rise slightly to one third, their numbers increasing from 3,600 to 3,325.

● The board received an interim report from its chairman's study group provisionally accepting the case for some colleges to be redesignated as polytechnics. It is to examine each case before making detailed recommendations. The group also reported that it was likely to support the proposal that any polytechnic should be able to use the word "university" in its title.

Students from North Riding College, Scarborough, pass Marble Arch on the last leg of a two-day relay run to lobby the board of the National Advisory Body. They were joined in London by Andy White (fourth from left), vice-president of the National Union of Students.

Southern polys lead 'switch' bids

by Karen Gold

Five southern polytechnics are front-runners for stage two of the Government's programme of switching £43 million to engineering and technology. They are Central London, Kingston, Middlesex, Plymouth and South Bank.

The National Advisory Body board this week approved the five bids for money and places, but recommended adding three reserves – Coventry, Hatfield and Huddersfield – and another group of four or five which would improve the geographical spread. One of these is likely to be Wales.

All the recommendations will go to the NAB committee in September, and those it chooses to the joint working group of industrialists and representatives of the Departments of Education and Science and Trade and Industry. This group will select the university and polytechnic recipients of the £33 million left for stage two which starts in 1986/87.

Only £5 million of that was expected to go to the public sector, but the NAB board has asked that it should receive more. The cost of the five front-runners' bids would be more than £4.7 million over two years.

Fears were expressed at the board, and are shared in the DES, that the geographical distribution of the five was impolitic; that it would suggest a north/south divide., and that it might lead to a "switch" within a "switch" by distributing the limited number of applicants to engineering and technology courses away from some polytechnics towards others.

The five were recommended by advisors from HM Inspectorate, the Science and Engineering Research Council and the Information Technology Skills Agency. They saw bids from 31 institutions, for 5,950 students on 108 courses at a total cost of £25.5 million. The advisors said the five they chose had the strongest educational merit.

The five propose 846 student places on 18 courses, some new, some existing. Three from PCL could bring students with arts A levels on to computer and engineering courses; Kingston offers extra places in software engineering and two new courses in manufacturing engineering; Middlesex offers extra places on four existing courses in electronic engineering and microelectronics and a new part time MSc in computer graphics; Plymouth offers extra places on its existing BEng courses and a new BEng; PSB offers a new arts graduate entry stream and a new part-time route into information system engineering.

Proposed cut may hit CERN

by Jon Turney
Science Correspondent

The Advisory Board for the Research Councils has moved swiftly to approve Sir John Kendrew's recommendation to cut Britain's spending on high-energy particle physics.

The board's endorsement of the findings was sent to Sir Keith Joseph, Secretary of State of Education and Science, this week and Sir Keith will lead interdepartmental discussions over the summer to decide whether to act on the recommendations, which include negotiations with other contributors to the European Centre for Nuclear Research (CERN) in Geneva to seek a 25 per cent cut in the laboratory's budget by 1991.

Two ABRC members sat on the inquiry and the board's endorsement was expected. But the physics community will be surprised at the speed with which the report has been passed to ministers. The recommendations were approved first by the Science and Engineering Research Council at its July meeting, examined by an ABRC preparatory group last week, and considered by the full board the following day.

However, there are unlikely to be significant further developments for some months. Consideration of Kendrew's recommendations on CERN will involve four Government departments: the DES, the Department of Trade and Industry, the Foreign and Commonwealth Office and the Treasury.

'End squeeze on overseas'

Plans to reduce Government support for overseas students have been criticized by an all-party committee of MPs, which also raised doubts about the effectiveness of existing scholarship schemes.

A report by the House of Commons Foreign Affairs Committee, which has a majority of Conservative members, called for an end to the squeeze on the Government's overseas programme generally. It described last year's cuts in the British Council's budget as "probably counter-productive".

The committee, chaired by Sir Anthony Kershaw, Conservative MP for Stroud, attached the greatest importance to devoting substantial resources to overseas student support, adding: "We are therefore concerned at the Foreign Secretary's announcement, in a recent Parliamentary Question, that although the 'Pym package' of extra funds for overseas student support – due to run out in 1985/8 – will be rolled forward, the provision has had to be reduced somewhat'. We cannot support such a reduction."

No details of the cuts have yet been announced. The committee proposed instead that the Government should consider increasing its support by charging home fees for all students financed from the Foreign and Commonwealth Office or Overseas Development Administration budgets. Such a course of action, it was said, would be very welcome in the Commonwealth.

The report accepted the need for scholarship schemes to be targeted. But it added: "The very multiplicity of possible schemes for awards gives rise

continued on page 3

Peter Biller on medieval demography, 13

Turning bashful dons into media stars with a message

by Adriana Caudrey

Professor Michael Thompson, vice chancellor of East Anglia University, is to take the leading role in coaxing the universities out of the shadows and into the glare of national publicity.

Professor Thompson takes over as chairman of the advisory committee on public relations of the Committee of Vice Chancellors and Principals from Professor John Roberts, vice chancellor of Southampton University.

The advisory committee has just produced an interim report in which it advocates that vice chancellors should shrug off donnish bashfulness, and instead learn to handle the media to promote a corporate university message thereby gaining public support in their fight against cash cuts.

The committee's proposals derive from a study by Joceyln Stevens, rector of the Royal College of Art, and former managing director of Express Newspapers, which states: "As far as the media are concerned the CVCP is the dog that does not bark."

He suggests the body which represents the vice chancellors nationally should develop a well organized public relations strategy, rather then merely adopting tactics. He says: "One message often repeated is more effective than a thousand different messages."

This is his argument for establishing the CVCP as an intelligence and information centre, rather than leaving this task solely to individual universities.

Mr Stevens argues that the public perception of the universities is founded largely on ignorance and bias. As a result government has been able to without protest except by those from within the system."

Mr Stevens calls for the setting up of a team of "media" vice chancellors whose task it would be to make television appearances, and to give radio and newspaper interviews on specific subjects, such as the research function, or student grants.

The report suggests that a leading journalist should be commissioned to produce a series of papers, educating universities on how the media works.

The CVCP is asked to consider setting up a universities parliamentary group, with which it would regularly meet and to look into commissioning public opinion polls.

● Universities received an unprecedented amount of their income from industry last year, while their real level of income from the Government drop-

Statistical Record.

Their income from contracts with industry went up by 21 per cent to more than £90 million. The Government's grant for equipment and furniture stood unchanged since the previous year at £83.6 million, a fall in real value of just over 5 per cent.

The universities' increased reliance on diverse funding is evident in the decrease in the numbers of full-time academic staff paid, exclusively by universities. This trend is most pronounced in the sciences where the number of full-time academics paid partly by non-university sources has shot up from 2,936, to 7,140 over the decade.

University Statistics 1983/84 Volume 3 Finance available from Universities' Statistical Record, PO Box 130, Chel-

letters to the editor

It is good news that the House of Lords has voted by a clear majority to continue the experiment of televising their proceedings until the House decides whether to make it permanent. I cannot pretend that I have been an avid viewer but the few times I have watched a debate and the more frequent times I have seen excerpts of their debates on the news have been an agreeable experience and I would be sorry to see one of the least harmful of television's offerings brought to an untimely end.

For the Lords themselves look as if untimely ends are far from their experience or their expectations. They look indeed as if they may last a very long time, having done so already. They are never alarming and usually assuring, symbols of continuity and worth.

Not that their debates have been very profound in their effect. What we have seen has been a rather random collection of affable old men, ample and unhurried, talking and snoring, some blind and deaf, but interspersed with some of the brightest academic luminaries, selected members of the intellectual establishment. On certain days the House of Lords looks like an old folks' home for retired bishops and vice chancellors.

But the debates are usually good. From time to time an obscure peer from the backwoods of Wales or Scotland comes in to protest about the state of things and that both lends a note of eccentricity and conviction lacking in academic meetings these days and gives a chance for minorities to be heard. Mostly it is a scene of much commonsense.

That is not the impression given by listening to the House of Commons on radio, so the prospect of seeing it on television should be treated with caution. It is surely inevitable that it will sooner or later be televised. That may prove a mixed blessing.

For what we have heard on radio has been for most of the public a revelation – of bawling and baying, mindless guffaws and standardized barracking by a whole party at a time. It is almost a relief to hear the Beast of Bolsover saying something he believes in, however puerile. Independent thinking from the House as a whole is a rarity.

What will television show us? A lot of very ordinary men and women trying to look extraordinary, occasional moments of insight and drama, selected scenes of drunks sleeping it off on both sides. The danger of televising it is final disillusion for the electorate. The cynicism of the public about the people it elects to look after them may be confirmed.

Will that be good or bad for democracy? The most powerful argument for bringing the proceedings of Parliament into our homes is that we will see and participate in the democratic process. The ultimate danger of watching the clowning is that we shall sigh for a clear-minded leader to be left alone to get on with the job. Some illusions are essential to our confidence in government.

Patrick Nuttgens

The value of scholarship

Sir, – Having recently subscribed to the *THES*, and acknowledging myself inexperienced in the matters under discussion, I nonetheless have deep misgivings on what seems to be an increasingly vocal school of thought expressed in William Birch's article (July 26).

I refer to the wholly unacceptable degree of outside interference in the organization and funding of higher education institutions, recommended so strongly by Birch. Is it not disturbing that his "strategic committee" should consist primarily of business and professional parties; secondarily, of advisory and funding bodies; and incredibly no one at all directly involved in the structuring and presenting of courses and research?

Yet this strategic committee is to be responsible for assessing academic demand, redefining roles within the higher education system, and setting its levels of finance. The clue to this imbalance is provided by his comments contrasting the "pursuit of scholarly values for their own sake" and "their pursuit as a means to the direct improvement of society".

The clear implication is that scholarly excellence in itself is somehow valueless. Moreover, taken in relation to his recommended strategic committee, the implications appear to suggest that pure academic are somehow incapable of deciding what is best in academic fields, or of making any useful contribution to policy decisions – ie that they are incapable of running their own lives. This is a hackneyed, unwarranted and insulting cliché which should be strongly refuted.

In fact, the decisions which Birch envisages his wholly unacademic committee taking, show precisely the necessity to include academics in the discussions. He (and, I note, Bell too) would propagate the idea of élite universities with sole rights to research, backed up by regional institutions for the pursuit of lowlier levels of education. Surely there can be no quicker way to stagnate an academic institution and, in the process, to reduce student demand for admission?

This brings me to my second point, which is the increasing lack of academic recognition given to the arts today, an attitude all too clearly demonstrated by Birch's article. His élite universities (the most heavily funded) are apparently to be devoted entirely to science and technology, and to subjects "related to private and public sectors of the economy".

Under such a scheme, the arts subjects, being relegated to the regional universities and denied opportunities for research, will inevitably be doubled to provincial status, and the lack of career prospects within those disciplines will equally inevitably lead to lack of interest, demand and development.

Perhaps, while the arts are incapable of defending themselves more forcefully than to suggest that they give added "breadth" to an institution (Dr Law, *THES*, July 12), this is what they deserve. But the arts, with their emphasis on the development of individual perception, understanding, consideration and evaluation, must not allow themselves to be separated from those who are apparently forming our society.

It is not a matter of "breadth", it is of fundamental importance to the formulation of an even adequately acceptable society. (Those who doubt it, see Woody Allen's *Sleeper*!)

Attempts to engineer the devaluation and separation of the arts must be seen as sinister indeed.

There are those better placed than I am to respond to the issues raised in articles such as the one by Birch, and I would stress that it is the function of all academics, and especially those in the arts, to make a response, and to make it heard, if we are not to be faced with a society of automatons and cultural morons.

Yours faithfully,
JUNE PURVIS,
Senior lecturer in educational etc,
Oxford Polytechnic.

YTS criticized

Sir, – I find your enthusiasm for the Youth Training Scheme (*THES*, July 5), albeit in a revised two-year form, quite at odds with the general view you hold about higher education. Nevertheless, I have read you wrongly, I misunderstood that *The THES* was strongly against the current thrusts via Government towards vocationalism and training in higher education.

You speak of the "laudable objectives" set for the YTS by the Manpower Services Commission. When last you last read a MSC document? The emphasis upon "competencies", "transferability" within what are termed "occupational training families" spells out to me a de-skilling process whereby one is to be adaptable and flexible to the labour market demands. In addition, young people on YTS know only too well that there is no guarantee of a permanent job at the end of the "training".

Would you, I wonder, accept the enthusiasm the intervention of the MSC in the university sector? Or is it the case that at 16 plus the most able goats must be channelled into the vocational route within which female, disabled and ethnic minority youths become even more disadvantaged, while the carefully selected sheep are prepared for education in its widest sense?

Yours faithfully,
P. E. MICHELL,
2 Brunswood Road,
Matlock Bath, Matlock, Derbyshire.

Marking time

Sir, – Your December article, Double Marking (*THES*, July 19), [illegible] of examiners about the examining procedures of departments which do not engage in independent double marking.

Even if all the scripts are sent to the external examiner, he or she cannot be expected to read them all. It is to be hoped that the Reynolds Committee will have something to say about this matter – and that those departments which now rely on a single internal examiner will think again about the respectability of this procedure.

Yours faithfully,
ALAN JAMES,
Department of International Relations, University of Keele.

LACE network

Sir, – The London Association for Continuing Education (*LACE*) is an organization of adult educators and administrators concerned with all aspects of continuing education in the widest sense of the term. We form a network which enables us to exchange information on curriculum development, staff deployment and training, stimulating and supporting new educational ventures and – most importantly – helping students to find educational activities which suit their needs. For this purpose we publish a newsletter and organize seminars and conferences which deal with local problems as well as with national and international developments in adult and continuing education.

At a time when unemployment, the threat of redundancy and premature retirement create social and psychological stresses which the individual finds difficult to bear, more is required than the narrow vocational training which the authorities seem to see as a universal panacea.

I should be grateful if you would allow me to appeal – through your columns – to colleagues throughout the Greater London area to join us in our efforts. Details of membership and subscription will be sent on receipt of s.a.e.

Yours faithfully,
HANS R. KLEIN,
Chairman,
LACE,
The City University,
London.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend them if necessary.

Wall talk

Sir, With regards to both the recent article "Climbers drawn up the wall" by David Jobbins and the letter entitled "Up the Wall" by Mr McEndoo, I would like to write on behalf of the British Mountaineering Council to clarify this situation.

The original article and list from which both pieces quote, was first published in the May edition of *High* magazine. The list was published for the climber who is interested in knowing which climbing walls lie in their immediate neighbourhood or in the area that they are visiting.

The categorizing of the walls has been widely misinterpreted. As already mentioned the categories were aimed at the climber and as such took into account various criteria, eg: the siting of the wall, the restrictions and regulations on access as well as the design and availability. The list also included many walls which do not have public access, many of which are in schools, colleges and universities, and therefore as far as the individual climber is concerned, these walls are not satisfactory. The BMC would like to see more use made of these facilities, many of which have been built with money from the public purse, a policy that is also encouraged by the Sports Council and the Government.

Many of these walls were categorized as inadequate in the list in *High* magazine, when it was not the design that was inadequate, it was the access restrictions that were unsatisfactory. With regard to the climbing wall at Teesside Polytechnic, it was unfortunate to have a picture of a very poorly designed wall next to Mr McEndoo's letter.

Their wall was an excellent example of how a polytechnic, students, the BMC and local climbers can work together and build a facility at a very modest cost to the benefit of all. My remarks in the magazine article about climbing wall prices being about the same price as a squash court were related to the professional consultant building an elaborate facility. Many walls have cost considerably less. Mr McEndoo also mentions that a squash court would have greater anticipated student use. In some areas the figures for using a well designed, sensibly sited and professionally managed climbing wall are greater than the use of the squash courts, and certainly outweigh the use of one court which can only accommodate two players at any one time.

I hope that this letter now clarifies the situation.

Yours sincerely,
IAN DUNN,
Technical officer,
British Mountaineering Council.

Picking winners

Sir, – On page one of *THES*, July 26, we are told that the Government's scientific advisory committees are considering setting up yet another policy research unit, this time with the job of picking scientific winners.

Further on in this same issue, you report the opinion of Dr Francis Crick, a man with some experience of being a scientific winner, that the striking success has to be for something which the people in the field initially won't believe, because it smacks too much of common sense.

If the scientists who sit on these committees and do this research into research cannot recognize the striking success when it has actually happened, it is surely straining credulity too much (and straining the public purse into the region of waste) to believe that they can forecast who is likely to make it!

Except, of course, that they can safely forecast that the likely winner is likely to be someone whose ideas they dismissed out of hand.

Yours, with feeling,
MISS J. M. PICK,
23 Maybourne Grange,
Turuplke Link,
Croydon.

Sub-degrees

Sir, – When we talk about "two-year degree courses" should we not make it quite clear that what we really mean are two-year *sub*-degree courses?

I have the honour to remain, sir,
Your obedient servant,

PAUL MARETT,
Department of library and information studies,
Loughborough University.

Early warning

Sir, – Your issue of July 19 carried a report of the singling out for close study of three schools of architecture, including that at Huddersfield Polytechnic, which is perhaps, symptomatic of the times we live in that statements of this sort are published before "institutions themselves receive any communication from official sources, but it is clear that the item is presented in a way which suggests that some final decisions have been taken over the future of three schools of architecture, when in fact no such decision has been made.

It is even more regrettable that in this instance you have referred to the school of architecture which has a 100 per cent employment record among its graduates, is well known for its pioneering work in the development of studio-based computing, and makes a valuable contribution to the local community through projects for environmental improvement.

In the event that the news item has any substance, I need hardly add that such an ill-founded recommendation will be vigorously opposed by the polytechnic, its governing council and the student union.

Yours faithfully,
ANTHONY FORWARD,
Head of the school of architecture,
Huddersfield Polytechnic.

Resources

Sir, – Professor A. H. Halsey says in his review of *Education: Time for a New Act?* by Richard Aldrich and Patricia Leighton (*THES*, July 5) that "advance in education, as in any service provision, essentially depends upon resources".

Yet in the very same review Halsey points out that in 1983/84 "the Inner London Education Authority planned a gross expenditure of £1,129 per primary and £1,600 per secondary pupil, compared with Dudley in the West Midlands where the figures were £609 and £866 respectively".

In other words resources per pupil in ILEA were nearly double those in Dudley. But nowhere in the review does Halsey produce the evidence to even make the claim that this doubling of resources ensured that the pupils in ILEA became twice as better educated as those in Dudley.

Halsey muddles what is necessary for advance in education with what is efficient. Resources are necessary for education, but they are not sufficient.

Yours faithfully,
BEVERLEY SHAW,
Lecturer in education,
University of Durham.

Boycott puts pressure on Dawson

by David Jobbins

Campus unions in the universities and public sector colleges are planning to launch a new campaign in defence of higher education and against the Green Paper.

For the first time teaching and non-teaching unions in both sectors are joining together to try to marshal public opinion against what they regard as the growing threat to access and educational standards.

And the unions are aiming to organize fringe meetings or other ways of getting their message through during the coming trade union and political conference season which begins with the TUC in Blackpool in September. At the TUC their efforts will centre on a motion from the Association of University Teachers which is highly critical of the Green Paper.

Senior AUT officials are to press for the motion to stand alone rather than being composited with a broad statement on education policy from the National Union of Teachers to add impetus to their plan.

The motion rejects the "short-term economic benefit approach" expressed in the Green Paper "not only because it is fundamentally philistine and anti-education but also because it ignores the long-term benefits of education to the economy and to employment."

It seeks condemnation of the Government's attempts to justify cuts already imposed on higher education, and to impose more, and calls on the TUC general council to press the case for expansion through the National Economic Development Council.

As well as four political party conferences, the unions intend to arrange events at the Confederation of British Industry's conference at Harrogate in early November, and to seek other outlets such as the local authority associations.

Then in the week beginning November 25 they are planning a series of regional rallies, a joint AUT/National Association of Teachers in Further and Higher Education representative lobby of Parliament, and local days of action designed to demonstrate the value of higher education to the economy and community.

Ms Diana Warwick, the AUT's general secretary, said: "We do not want to give a negative image, to create the impression that people are downing tools.

"There is a changed atmosphere, a recognition that damage is being done while perhaps two years ago it was thought that universities and colleges were crying wolf."

Unions join forces against Green Paper

Keeping his memory Green...

The mill at Snelton, Nottingham, where the 19th-century physicist George Green lived and worked has been restored with funds raised through an appeal set up by Nottingham University physics department.

George Green, almost unknown in his lifetime, is now recognized as the inventor of Green's functions – used for solution of differential equations – and other work on the foundations of classical physics. He lived in the family mill until 1833, when he moved to Cambridge.

The derelict building has been fully renovated, and a small science centre is now open next door to illustrate Green's work. The centre was opened by Sir Sam Edwards (right). With him are Professor Lawrie Challis, head of Nottingham University physics department and chairman of the George Green memorial fund, and lord mayor, Mr David Tongue.

Docklands college victory for ILEA

by Felicity Jones

The London Docklands Development Corporation has backed down over plans to create a £10 million open college scheme after discussions with the Inner London Education Authority.

Plans to provide courses for adults in new technology skills to meet the demands of industries moving into the docklands were the source of bitterness between the LDDC and an alternative open college by ILEA.

The ILEA open college arose out of the review of advanced further education and will be based on the City of London polytechnic.

A consortium of 15 colleges had already begun discussions to back the move when the LDDC produced the proposals for its counter scheme.

Mr Gordon Kirkwood, former convenor of ILEA's City and East London College working party said: "There has been some bitterness because our plans were well advanced when we became aware of the parallel development.

"The LDDC seemed to have produced its plans without any proper consultation with any of the colleges or the local education authorities."

Last week some solution to the deadlock seemed imminent when ILEA education officers and members met with the chairman of the London Docklands Development Corporation, Mr Christopher Benson.

Ms Margaret Morgan, chair of ILEA's planning sub-committee said following the meeting that the bases for future cooperation had been reached.

"We told the LDDC that we were concerned that they should be planning to set up an independent institution when local education institutions were already planning to do precisely the same," she said. "We felt it would be much better if the corporation plugged into the existing scheme."

ILEA has agreed to second an officer to work with the LDDC to help it to link in with the planned college.

In turn the corporation has agreed to drop plans to erect a new college building in exchange for an agreement that ILEA will expand the Poplar site of Hackney College either as a further education or tertiary college.

Students union Moscow line is one of consensus

British student delegates to this week's Moscow youth festival were intent on raising the issues of Soviet jewry and women's rights.

But there were no signs that the National Union of Students (UK) would follow the example of West Germany and pull out of the festival despite the difficulties its delegates may encounter in arguing its case.

Risks of a British withdrawal from the festival, the first to be held since Cuba in 1978, diminished with the agreement among the 150-strong British delegation that it would proceed on the basis of a consensus. There were suggestions that hard-line Communists would try to overturn the consensus decision when the delegation arrived in the Soviet Union at the weekend, but this does not appear to have happened.

The NUS has 10 delegates including MS Lesley Smith, the retiring vice president for education, and treasurer Mr John Murray.

Poly winners

Two Lancashire Polytechnic scientists, Dr Roy Chantrell and Professor David Melville, are the first non-American winners of an award from the United States Institute of Electrical and Electronic Engineering. They will share £10,000 with Imperial College, London, for research at the polytechnic into magnetic material.

N(ew) A level grade agreed

The Government has agreed in principle to reform the A level grading system but has decided to go to consultation prior to announcing a package of changes early next year.

Announcing his decision in a letter this week to the Secondary Examinations Council, Sir Keith Joseph, the Secretary of State for Education and Science, said: "The aim is to announce a decision early in 1986. This will allow GCE boards and higher education institutions ample time to adjust their procedures for summer 1987 examinations and autumn 1987 higher education admissions."

Sir Keith adds that he considers the recommendations for change made by the SEC to be both fair and practicable and capable of standing the test of years.

The Government has agreed to retain the five A level pass grades A to E and replace the O level grade awarded to those who narrowly fail A level with a new grade N.

It has also agreed to redefine grade borderlines by dividing the range of marks between the B/C and E/N grades into three equal intervals.

But in his letter Sir Keith states that in view of the diversity of opinion that still exists among GCE boards and some higher education institutions consultations would take place on the proposals between now and November.

The letter states that Sir Keith sees merit in the inclusion of an N grade on certificates, in order to give tangible credit which though not an A level pass may nevertheless be a useful indication to higher education institutions and employers.

'End squeeze on overseas'

continued from front page

to questions about whether the process is as effectively designed and operated as it should be. It is true, as the FCO has indicated, that the different schemes are in place precisely because they are each intended to attract a particular target group, and the different selection procedures are designed to fulfil that intention. Nevertheless, there is clearly a great deal of overlap between some of the schemes."

Doubts were also expressed about whether the schemes were directed towards the most urgent needs. "There does seem to be a bias in the Government schemes towards university (or similar) education, whereas what is really needed by many developing country students is assistance for technical and vocational courses which are generally provided outside the universities," the report said.

The committee considered a review of overseas support essential and urged that it should be conducted at a high level. An inter-departmental review is due to report next year.

Overseas Programme Expenditure 1985/86 (House of Commons paper 295), £10.10 from Her Majesty's Stationery Office.

NAFE settlement gets Government go ahead

The Government has given the go ahead to plans for work related non advanced further education agreed between the Manpower Services Commission and the local authorities.

The plans, drawn up by a policy group of MSC commissioners and local authority association members, were ratified by the commission last week. Some people had expected opposition from Mr Peter Morrisson, the employment minister.

Agreement from Mr Tom King Secretary of State for Employment, marks the end of 18 months of argument and dissension as to who should control NAFE. This was the direct result of the White Paper *Training for Jobs* and the transfer of 25 per cent of NAFE funds from the local authorities to the MSC.

Mr Bryan Nicholson, chairman of the MSC, said that before better planning could take place, the agreement and understanding that had developed nationally between the MSC and the local authorities would have to be developed at local level.

"There is a great deal to do in a very short time if plans for the 1986/87 academic year are to benefit from the new arrangements," he said.

The framework for a national body to oversee NAFE and continue the work of the policy group is still under discussion. Mr Nicholson stressed the importance of a regional network and said the role of regional advisory councils was under discussion.

The new agreement entails the preparation of the three-year plans by local authorities and a more detailed annual plan which will outline new courses and course closures. On acceptance of the total plan, the ISC will release the 25 per cent of funds which it has been allocated, but this will be subject to a yearly review.

Courses

International Specialist Course

Computers in university administration – for administrators

6 - 11 April 1986 in Belfast

This course is aimed at giving administrators an understanding of the part they play in making computer systems (particularly in the context of an information system) a useful and worthwhile asset to their job and to the work of the administration. It also aims to develop an appreciation of the potential of modern computer systems so that full and intelligent use can be made of them.

The course will be directed by **Professor R W Ewart**, Head of the Department of Computing Science at the University of Ulster.

Qualifications of members
The course is designed for senior staff experienced in university administration, who have, or who may have in the future, some responsibility for the development of information systems within their university.

There are vacancies for 30 participants.

Fee £365 (Residential only).

Venue and accommodation
The sessions will be based at the University of Ulster in Jordanstown, just outside Belfast. Participants will be accommodated in a hall of residence on the university campus.

Further information and application forms are available from British Council Representatives overseas or from Courses Department, The British Council, 65 Davies Street, London W1Y 2AA.

The British Council

DON'S DIARY

SATURDAY

This is the third year that I've been at the University of East Anglia as an Open University summer school tutor for U204, "Third World Studies". So everything has the reassurance of familiarity: UEA's angular architecture, even its convoluted one-way system. And, best of all, old friends: the course team, and fellow tutors.

Since we're all veterans, neither the morning general briefing nor the guide to specific activities in the afternoon is especially onerous. A far cry from two years ago when everything had to learned from scratch – by the tutors, never mind the students. The latter arrive in the afternoon, and after a formal welcome we split them into tutorial groups of a dozen or so. Two of my group have had dawn starts to get to Norwich from Scotland and Devon.

Given such journeys (and the fact that it's Saturday night, although the OU is no respecter of weekends), we ease them in gently. The first activity is a "cross-cultural simulation" called Bafa-Bafa. Next we give the game away, but the group is split in half and each plays a different culture. As always this is both fun and thought provoking. It has a clear learning function, but several of the cultures are complex and detailed enough to keep groups arguing long after the session is officially over.

Sue Corcoran is exhausted, evidently. At about midnight, three students and myself spontaneously decide to take a stroll and investigate Norwich night life. We find and sup at a local real ale house and then head for the night away amid some young persons half our age. After all, it is Saturday night.

SUNDAY

No sabbath here, but a 9am lecture on theoretical concepts (dependence, interdependence, Brandt report, etc). I have to chair this; thankfully, after last night, I don't have to deliver it. Next comes the first of five sessions devoted to project work. Each student must choose one of five project options, whose range is as wide as befits an interdisciplinary course: from intermediate technology through to analysing an African novel. This year, I'm on "Media Monitoring", which involves sampling the press for third world coverage – or absence thereof, in all too many cases.

Quick mental gear-change after lunch, for "Atlas Activities". The aim of this exercise is to show the numerophobic how surprisingly painless it is to extract data and arrange them in tables or graphs. My group sets to with a will.

After dinner there are evening options. I go to Tara Arts, a British Asian drama group.

More partying to round off the day, with a reception given by the UEA school of development studies. Also present are third world officials doing short courses; so this may be the first chance for some of our students to actually meet and talk to such people.

MONDAY

It feels like about Wednesday already. The morning is for projects, once again. Slight atmosphere of the doctor's waiting room, as students come for individual 20-minute appointments to discuss their particular problems. As usual, the range is wide.

We come together again in the afternoon for the India-Bangladesh activity. Based on a real (and continuing dispute between those two nations over their share of the water of the Ganges, this requires students to "play" not only each country but separate ministries (foreign affairs, water resources, etc), and put their respective cases to a UN tribunal (me).

In the evening I miss the Sembene Ousmene film, as I do every year. Not aversion, but something always comes up. This time it's the Third World Studies Society party; at which by immemorial tradition (going back to 1983) I perform a scurrilous ditty called "U204 Calypso", gently mocking this wonderful course and all who sail in it. The party isn't till later, but I have to write some extra verse and change some in-jokes. It seems to go OK.

TUESDAY

India and Bangladesh present their cases. As ever, and just as in real life, the international rivalries are cross-cut by inter-ministerial frictions. The two foreign ministries are all for doing a deal, over the heads of strong objections from water resources. They eventually decide to meet for a conference – in Algiers. At the subsequent plenary, we find out how the other three groups got on. They all found a technical solution, it would seem.

After lunch, there was to have been a Caribbean poet – but he's postponed till Thursday morning. Rashly, I have agreed to fill the gap by using the example of Korea to illustrate (?) and tie together (?!) the many and various themes of U204. To a taped background of gentle *kayagum* music (a kind of zither), I duly expatiate for far too long on my favourite country. They ask good questions.

In the evening I go to an option on women and development, where I turn out to be the "token man". The Sixties Disco rounds off the day. Yet another good time.

WEDNESDAY

And now for something completely different. Wednesday morning is Essays on election activity, to enact the Manifesto Scam in the context of IMF pressures and the like. This was a lot of fun last year, and I hear the same this time. But it's an all-day job and Wednesday afternoon is free time. This may be my last chance to see us in Norwich because it's a gorgeous day, so we head for the coast. Norfolk's beaches are a delight and we all round off the day with a pub meal on the Broads. So apposite is the sea air that I almost doubt I'll have the energy for the third world disco. But not quite! It's fun to watch the students' reactions. Reggae is familiar to most by now, but African pop (hi-life, etc) something else. Still, most of them are up on the floor eventually.

THURSDAY

Final project session. The afternoon is devoted to reading, and discussing long chunks of block four of the course (Brandt, dependence, interdependence, etc) in preparation for tomorrow's grand finale debate.

Final evening option is a marvellous talk by Jeremy Verity on the background to Jamaican popular music. And then, the positively final disco (just as well: I don't think I could cope with another).

FRIDAY

And so to the great debate, A.V.30 start, in consideration of last night. The motion is: "That exploitation by the first world of the third world is the principal obstacle to the latter's development". Each tutorial group has chosen one speaker, so there are teams of five (led by a tutor) on each side. We took a vote at the start of the week, and found as usual a considerable majority in favour. But there is a pattern: since the general tenor of this course is to discourage such simplistic notions (hear that, Sir Keith?), the opposition nearly always catches up. But will they overtake? Not this time! Dependency theory rules, OK.

The week concludes with a guest lecture, always thus far by an African novelist. This year it's British-based Nigerian author Buchi Emecheta.

And that's it! Goodbyes can be so anti-climactic. Much as I enjoy my full-time job, this week of OU summer school teaching is the high point of my year. *All* teaching, all learning should be like this.

Aidan Foster-Carter

The author is lecturer in sociology at the University of Leeds.

Nautical college in new storm

by Olga Wojtus
Scottish Correspondent

Lothian Regional Council has begun talks with the Scottish Office on taking over Leith Nautical College.

The college has been under threat of transfer for the past three years since the Council for Tertiary Education in Scotland proposed that Leith should change from its current central institution status and become a local authority further education college.

A joint local authority/SED working party on nautical education proposed in December that nautical education should be centred at Glasgow College of Nautical Studies rather than Leith.

The region will find it very difficult to resist SED pressure to take over the college, but is still doggedly maintaining that the outcome is not a foregone conclusion.

"A working group of officials from the SED and region will be preparing a report with a great deal more information which we feel we require before we make a decision," said Lothian's education committee convener, Councillor Astrid Huggins. The group is expected to report in October.

In fact, the region sees Leith as an excellent purpose built college which would replace four annexes currently used by other further education institutions. It might also serve as a conference centre.

But the council's ruling Conservative group is committed to reducing expenditure and is firmly opposed, particularly in a pre-election year, to take on extra financial commitment.

The running costs of Leith appear to be greater than those of the four annexes, said Councillor Huggins, and the region is seeking further information on the prospective drop in student numbers.

"Another area we are looking at very carefully is staff," she added. "We are not at all clear whether we would be taking on any staff, and if so, which staff."

Although Leith would no longer be a specialist college, a number of staff teach mainstream courses in electronics and related fields. But the region would be reluctant to take them on if this duplicated work already conducted in Lothian's colleges.

Mr Stewart Boyd, vice chairman of Leith's board of governors, condemned the decision to centre nautical studies in Glasgow as "purely political". The tonnage of shipping on the River Forth was rising and would continue to do so, while that on the Clyde was declining, he said.

Face to face: Lord Murray of Newhaven, a former chairman of the University Grants Committee, inspects a bust of himself unveiled on Sunday at Lincoln College, Oxford, where he was rector for 14 years. The bronze bust, by Lady Quinton, of Trinity College, Oxford, was unveiled by Sir Peter Parker, one of Lord Murray's former students. A trust fund has been established in Lord Murray's name to support overseas students at Lincoln.

Green light for Welsh merger

by Adriann Caudrey

The official go-ahead has now been given for the merger between University College, Cardiff, and the University College of Wales Institute of Science and Technology – a union which has provoked heated controversy for the last two years.

The amalgamation plan has been beset with complications, criticisms and delays. In 1984 when negotiations were already underway, UWIST tried to call off the merger, because of "unresolved difficulties". Then, earlier this year, when discussions were again at an advanced stage, the Association of University Teachers voiced concern at some of the conditions of the merger.

Now, the court of the University of Wales has unanimously approved a report from the university's merger committee which recommends that the union should take place. This represents the final green light. The report has been approved by the university's council three months ago.

Negotiations regarding the proposed merger were maintained after intervention by the University Grants Committee. The UGC announced that departments which were enlarged by the move would attract more research council funding.

The UGC has also promised UC and UWIST a £15 million joint engineering building by 1994, conditional on the two institutions reaching "an irrevocable commitment to merge". It is thought that this point is now being reached.

In its report, the merger committee suggests that the amalgamation will create a "virtuous spiral", whereby improved resources would attract excellent staff, who would in turn attract very able students.

It strongly advocates the merger, asserting that the engineering faculties in particular would gain through size. The report says UC and UWIST could separately expect to maintain their engineering departments that consist of a range of facilities and expertise, on average by UK standards, but below average by international standards. Whereas together they can consolidate expertise in most major areas to provide the full range of workshop equipment.

The report also says that together the two institutions would be able to improve their already strong science and technology departments.

It points out that the many joint courses at UC and UWIST and the common subject groups, so that some departments could be combined, and integration of libraries and computing would also lead to greater efficiency, says the report.

UC, whose student population is now at the latest count, 5,080 is the largest of the University of Wales' constituent institutions. UWIST had 2,700 students during the same period. UC accounted for 27.2 per cent of the University of Wales students, UWIST accounted for 14.7 per cent.

It was partly for this reason that UWIST had doubts about the amalgamation, fearing that the larger institution would have the majority in university committees.

Property offer to Magee

A property dealer in Londonderry has offered to build the first phase of the Magee college development to his own specification, on a seven-acre estate adjoining the college.

He would then sell the development to the university, along with half the estate, for a sum between £2 and £3 million.

The University of Ulster estates committee has recommended that the University Council turn down the proposal, and instead acquire the whole of the seven-acre Aberfoyle Estate, which it had been negotiating for since 1983, before Bobby Bell Properties Ltd stepped in and bought it. Discussions with the education minister are now in progress as to a possible ceiling bid that would secure the land, its lodge, elegant house, outbuildings and gatehouse.

The university is supported in its stand by Derry City Council and the Derry Civic Committee – a body appointed initially to safeguard Magee's interest in the merger and now reconvened, under the chairmanship of Mr Michael Canavan, to ensure the new campus has adequate space to develop.

Local residents, who must be consulted before planning permission is given, favour the offer made by Bell Properties, however.

Bigger grant demanded for FE inservice

A new general grant for the funding of inservice training in further education well in excess of the proportion allocated to schools has been recommended by the Advisory Committee for the Supply and Education of Teachers.

Its advice is contained in a letter to the Secretary of State for Education by ACSET chairman, Sir Clifford Butler. Sir Clifford stresses that one of the committee's major concerns is coherent planning of higher education provision of INSET across the binary line, and the need to ensure an appropriate contribution from the university as well as the public sector.

ACSET also recommended the setting up of a new national advisory body to oversee INSET in further education and for the Government to set aside funds to finance the immediate expansion of training for education management.

ACSET stresses that the new general grant should be introduced alongside centrally directed funds. It says that the grant should be set at 5 per cent of the cost to local authorities of employing further education teachers – already proposed for INSET in the schools sector.

The committee points out that the general grant approach is attractive because it would enable local authorities to give higher priority to staff development for further education teachers.

Electric charge from the bishop's daughter

by David Jobbins

Mpho Tutu, passing through London shortly before the declaration of the state of emergency in South Africa, showed no qualms at returning to her Johannesburg home.

"Not going home was not up for consideration – I do not think of returning home as something optional. One goes," she said.

Mpho, one of three daughters of Bishop Desmond Tutu, the Nobel prizewinner, is following in the family footsteps by studying abroad.

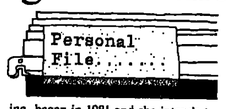
But unlike her father, who was a student at King's College, London, she is studying at Howard University in Washington DC – something her godfather, Mr Martin Kenyon of the Overseas Student Trust, sees as a sad reflection of the shifting pattern of overseas student recruitment.

Her studies, in electrical engineering, began in 1981 and she intends to return to South Africa when they are completed in 1986.

Distance has not weakened her commitment to the fight against apartheid into a detached sympathy. "You do not sympathize with something you are involved in yourself. It is not a feeling of sympathy but of one-ness."

She had no doubts about the justice of the cause, but a sense of foreboding which recent events in South Africa underline.

"We have been keeping cool since the 1600s – how much longer do you want us to stay down and keep cool?



Obviously things are going to reach flashpoint and this is the stage we are reaching now. It is anybody's guess when that will happen."

The Botha regime is, she believes, faced with a stark choice – "to continue with the repression or to come to its senses." And, the international community has the power to persuade South Africa and its government to move more quickly to make fundamental changes.

"International pressure is going to be the deciding factor in how soon and how bloody the path to change is. It is one thing to resist pressure either from inside or the outside, but pressure from both becomes much more difficult to yield."

British academics and students who have provided the backbone of the anti-apartheid movement over the years are high in her estimation, and she feels that they now have a key role in mobilizing public opinion.

"This is their duty now. They are the ones with the information at their fingertips and they should be using it."

Merger hope as planning school shuts

by Felicity Jones

The planning school of the Architectural Association closed this week but interest is being shown in amalgamation with it by polytechnics and the University of London.

The staff and students failed to change the mind of the AA's council and Mr Alvin Boyarsky, the head of the school, who considered that the work of the planning department had drifted away from the aims of the school.

The school relies totally upon fee income and in recent years the planning department had moved almost exclusively into development planning for overseas students. It ran a post-graduate diploma, masters and PhD under Council for National Academic Awards accreditation.

Mr Adrian Atkinson, one of the contracted staff within the planning department said: "We have found greater interest in us than we expected both within London and from institutions in outer London."

The small nucleus of remaining staff who are trying to find another home for the planning school hope to revive the local economic and popular planning work pioneered by the department 10 years ago. If there was a successful merger, this could lead to the readmission of British students lost due to fee increases.

● The rector of Huddersfield Polytechnic, Professor Kenneth Durrands, said any attempt to close their school of architecture would be vigorously opposed.

The polytechnic maintains that its school has a 100 per cent employment record and has an international reputation in information technology.

The Royal Society of Ulster Architects, 90 per cent of whose members are graduates of The Queen's University school of architecture in Belfast, has condemned the closure of the school there.

The decision would lead to the closure of the only architecture school in Northern Ireland, which moved into its new £600,000 purpose-built premises in the last few weeks.

Changes follow court ruling

by Karen Gold

Local education authority contributions to the advanced further education pool are to be changed, following a High Court decision that the Government's method of calculating them was unlawful.

The change was announced in the House of Commons by Sir Keith Joseph, Secretary of State for Education and Science, who lost the case to the Inner London Education Authority.

The ILEA is the only substantial beneficiary of the decision: it will gain a £25 to £30 million rebate from the current year onwards because of the new method of calculation.

It brought the case to the High Court arguing that the previous method of calculating the pool, partly based on the size of local authorities' rates income, was unfair because it was not related to how much each authority's residents used higher education. Most recurrent higher education spending in the public sector is paid for out of the pool.

The new formula will be introduced from this year, and contributions will be based on the number of students whose home is in each authority. That means authorities which send many students to higher education but provide little of it themselves (such as Surrey) will be contributing more in theory, though in practice the money comes through the Government's rate support grant and is expected to cause little change.

The ILEA is affected so substantially because it spends sufficiently far beyond its government target to receive no rate support grant at all, and so will have a cash rebate. Other authorities feared they might be pushed beyond their spending targets by the greater contributions to the pool under the new formula, but the Government is expected to discount higher pool contributions from calculations of spending targets.

The Government is also consulting local authority associations on the change. The ILEA had proposed a compromise change before taking Sir Keith to court, but this was rejected by the then Conservative-dominated Association of County Councils. Their view may change now that Labour is the majority party.

The decision was hailed as a major victory by ILEA's finance subcommittee chair, Mr Steve Bundred. "Overall this victory is a major boost for us and goes some way to offsetting the huge sums of money the Government has robbed from Inner London in the last five years," he said.

Sir Keith has also announced a 1.5 per cent cash reduction in the ILEA's expenditure, for which he is responsible from next year, for 1986/87. The target of £902 million takes into account the ILEA's extra money for the new pool formula. Mr Bundred said it was too early to say how this would affect the authority.

Dispute fails to hit exams

The Scottish Office Minister for Industry and Education, Mr Allan Stewart, has revealed that the ten-month teachers' dispute seems to have had little effect on Scottish pupils' exam results.

The Scottish universities council on entrance had invited headteachers to submit reports on pupils who narrowly missed satisfying conditional offers.

Headteachers whose schools have suffered from closure can appeal against exam gradings. But figures from the Scottish education department show that in targeted schools, 65.3 per cent passed Higher grade examination, compared with 66.5 per cent last year, and 65.5 per cent of pupils sitting ordinary grade exams passed with A to C awards, compared with 66.7 per cent last year.

Mr Stewart said he believed some individuals' performances would have suffered, and the special appeals arrangements would allow each case to be considered fairly.

Family affair: Dick and Valerie Wyvill emerge from a graduation ceremony at Hull University, where both were awarded a Bachelor of Laws (LLB) degree. Dick, a senior registrar at the university was awarded a first, and his wife Valerie an upper second, after five years' study on Hull's first part-time LLB course. Their son received his LLB the previous day after completing a full-time course at Leicester University.

Warnock answers embryo inquiry criticisms

Philosophy is little help in resolving debates about control of technology, according to Dame Mary Warnock, mistress of Girton College, Cambridge, and chairman of the recent Government inquiry into manipulation of human embryos.

Speaking in Oxford last week, she answered criticisms from her fellow moral philosopher Professor Richard Hare that her report was light on philosophical arguments to back the moral positions taken by the committee. Dame Mary said she had not regarded herself as a philosopher when chairing the inquiry.

She told a seminar on biomedical ethics, organized by the Oxford University Department of external studies and the American Hasting Centre, there was no reason why there would ever be a moral consensus on the issues raised by the new techniques of *in vitro* fertilization or the possibility of surrogate motherhood. "There is a large body of people which is not only not interested in moral theory, but believes the theory is malignant", she said.

Commenting on the reception of the report, Dame Mary said she was amazed by the power of the argument that permitting any research on embryos put us on the top of the slippery slope. And she was equally surprised by the lack of trust in the power of laws to control behaviour.

Her own experience in the chair of the Home Office's animal experiments licensing committee suggested such arrangements could work well. "I think on the whole scientists are quite pleased to have rules so that they can peacefully get on with their work without the general public breathing down their necks."

She also revealed she supported the minority report, signed by two committee members, suggesting there were times when arrangements for another woman to bear a child for a couple were justified. Dame Mary said the committee had spent a long time seeking a loophole which would outlaw commercial surrogacy but permit small scale licensing of the practice, but had not found a form of words for this. She noted the British Medical Association recently came out in favour of surrogacy in exceptional cases.

She also stressed that while a main motive of the committee had been to restrict research on embryos, some further research was essential to raise the success rate for *in vitro* fertilization, not standing at 10 or 15 per cent.

Professor Hare maintained the committee's apparent failure so far to command a parliamentary or public majority for its recommendations was because the inquiry took the wrong philosophical approach. He argued that a determined application of utilitarian principles would eventually gain popular assent, but the Warnock report made no attempt to do this.

He said the lack of cogent reasons for the committee's recommendations on research left them open to attack from individuals with strong intuitions against the legitimacy of embryo research.

Positively yes to more women

The European social fund has awarded Strathclyde University £80,000 to appoint a specialist in positive action for women and a women's placement officer.

The grant, over three years, will be supervised by Professor Angela Bowey of the Strathclyde business school, who is also a commissioner of the Equal Opportunities Commission.

Strathclyde is likely to advertise the two posts within the next month, and the appointees' work is expected to follow on from research conducted in Strathclyde by Dr Caroline Bamford over the past 15 months on the position of women in the university.

Deaf congress

Delegates from India, Ethiopia and the Far East will be among more than 1,000 taking part in the 16th International Congress on Education of the Deaf at Manchester University next week.

ANTITHESIS

Sweet taste of success

Do National Advisory Body board members have a soft heart, or only a sweet tooth? Behind the surprise reprieve by the board this week of North Riding College lies an unusual lobbying device: sticks of Scarborough rock. The college, threatened with closure, sent a stick of local rock with its case for staying open to each member of the board.

Individual votes on the college's fate at the meeting sadly went unrecorded, making impossible an analysis of the voting patterns of those members with false teeth – or small and extremely persuasive children.

A hypermarket of human experience; that's Manchester University, which has just published a list of research interests. From the cradle (battered babies) to the grave (ageing) and beyond (mummies – Egyptian mummies that is). Revolution, Rheumatism, Riots and Rubbish. Cancer, Crocodiles, Deafness and Drunks. And there's Accidents, Absentmindedness, Human Errors, all from the appropriately named professor of psychology, Professor James Reason.

Keeping a low profile

Liverpool City Council's chairman of education and local poly student Dominic Brady was presented with his degree in environmental planning in the city's Anglican cathedral a fortnight ago. No press photographer was there to record the young left-winger in such conservative surroundings.

Censorship? Possibly. The poly's press release announcing the annual awards ceremony merely mentioned Mr Brady in its penultimate line – well below the cut-off point for busy journalists – and sent it out to reach London after the ceremony took place. The local *Liverpool Post* could have been there – but there was a university degree ceremony the same day and, missing the mention of Mr Brady, they went to that instead.

Academics for Labour, the campaigning title chosen by shadow education secretary Giles Radice to be launched at the Labour Party conference next month, has too donnish a sound for the party's headquarters.

So before it even starts, the group meant to mobilize Labour support in universities, polytechnics and colleges has been renamed to include an optimistic acronym: Higher Education for the Labour Party.

Lesson in the facts of life

When Marion Barry, black mayor of Washington DC, faced 2,000 teenagers at a planned parenthood conference last week, he felt he ought to get his facts straight. "How many of you," he inquired, "know a teenager that has gotten pregnant?" A forest of hands shot up.

The mayor blanched and tried again. "How many of you don't know a teenager who has been pregnant?" Twelve hands were raised.

Mayor Barry, who is not easily shocked, looked down at the smiling young faces and mopped his brow. "Jesus Christ," he said.

Antithesis is taking an August break, but will return in September.

UCL tipped for archaeology move

by Adriana Caudrey

Foundations are being laid for a possible merger between University College London and the Institute of Archaeology.

The neighbouring establishments already have plans to introduce greater academic collaboration. These are likely to pave the way for closer financial and constitutional links.

According to Dr Ian Orchardson, the institute's registrar, it is envisaged that the merger would be similar to that between UCL and the Slade school of art. Using this model, the institute "would not disappear without trace," Dr Orchardson said. Instead, it would continue to have a separate identity and its own students, but all resources would be pooled.

The merger plans have come in response to the recent call from the University Grants Committee for universities to develop larger, combined departments, in the interests of efficiency.

A draft document is currently being prepared by senior staff at both UCL and the institute, which will be circulated in both institutions early next term. A paper outlining the advantages and disadvantages of the change will also be presented to the institute's committee of management in October.

Dr Orchardson said that the academic alliance made sense because many of UCL's departments complimented the work of the institute. UCL teaches medieval archaeology, Egyptology, and ancient history. Its first-year medieval archaeology students attend courses at the institute.

Dr Orchardson said: "On the academic side there are obvious advantages. There could be other long-term advantages through being a larger organization. One often gains more flexibility over staffing. A small unit such as we are often has difficulty making adjustments during a financial squeeze."

The UGC made it clear in its notice to universities three months ago that small departments would have problems surviving current financial constraints.

Dr Orchardson added that the work of the two institutions was so similar in some areas that another advantage would be the ability to invest in joint equipment.

Veto for science ministry

by Jon Turney
Science Correspondent

Mr Peter Brooke, Under-Secretary of State for Education and Science, has set his face against creation of a science ministry, just a week after the latest call for a minister for science and technology, from the House of Commons Education, Science and Arts Committee.

Writing in the latest issue of the British Association for the Advancement of Science's magazine, *Link-Up*, Mr Brooke says it is not clear those who want to promote science as a national priority would achieve more through a single department than they can now through a network of ministers and committees.

The recommendation of a minister for science is becoming a regular feature of report on science policy, including earlier inquiries by the former House of Commons Select Committee itself. However, the latest select committee to consider the idea does say the main priority at the moment is funding, not structure.

Mr Brooke says one reason the science budget battle is weighted against the researchers is scientists' reluctance to educate the public about the value of their work, or protest at loss of funds. He says the most significant feature of the furore over the Government's proposals last Christmas to take money from student grants to boost science spending was not the vehemence of students' parents but the silence of the scientists.

The minister recalls that the DES received 10,000 letters on student grants, and only a handful on science. "Restructuring government runs the risk of irrelevance, unless society at large appreciates the contribution of science and the potential opportunity costs of not investing in it; and that educational process cannot be abdicated by the scientific community," he says.

Hi-de-hi help for campaign

by Felicity Jones

An anniversary recruitment drive to attract adults to literacy programmes is to be launched by the Adult Literacy and Basic Skills Unit in September.

In the first two weeks of the month, publicity posters featuring personalities such as Ruth Madoc (above) encouraging students to seek help will be distributed to local basic education centres, libraries and jobcentres.

Advertising space has been donated by a number of magazines and newspapers and several independent television companies will be providing space on their public service announcements with a local referral number for inquiries.

The unit has arranged the back-up information services at local centres in most parts of the country except the North-West and East Anglia where the companies do not screen public service announcements.

The recruitment campaign, which will coincide with International Literacy Day, is aimed at the estimated two million people who have difficulty with reading and writing. The figure is considered by ALBSU to be an underestimate.

Women offered fellowships

A fellowship scheme for women engineers and scientists returning to work after a career break will be launched just in time for the coming academic year. The scheme, initiated by Professor Daphne Jackson of Surrey University has been delayed by legal and financial problems within the University Grants Committee and the Science and Engineering Research Council.

Professor Jackson stresses that her proposal for fellowship places earmarked for women looking for a path back into research was received sympathetically by both bodies in the wake of last year's campaign to attract more women into technical subjects under the banner of WISE – Women into Science and Engineering – year.

But the SERC had no spare cash, and the UGC was advised by the Department of Education and Science it could not legally support such a scheme. The Sex Discrimination Act, which provides for special schemes for one sex in sectors of education where they are underrepresented, only applies to training places. And the UGC can only pay for university staff.

However, the scheme will now get off the ground with support from the Leverhulme Trust, the Institute of Physics, and companies, including GEC, British Telecom and British Gas. There will be six places on offer this October for women between 27 and 45 who want to resume work part-time, and previously attained a PhD or corporate membership of an engineering institution. More places may be available next year.

Professor Jackson, president of the Women's Engineering Society and head of the physics department at Surrey said she began to campaign for the scheme when she realized five appointments had been made in the department over the past few years without a single female applicant.

The SERC has also modified its rules for existing council fellowships.

Union to change election rules

A special conference to change the rule book of the college lecturers' union and minimize the risk of conflict with the courts over the 1984 Trade Union Act is to be held later this year after all. It seems likely to be December before the National Association of Teachers in Further and Higher Education can make changes to the way its elections are conducted – well after the October deadline set by the Act.

But details of the changes are to be finalized this month and circulated to the union's 770 branches early in September. Officials believe that this will be sufficient to head off any threat of legal action.

Union leaders have been warned by their lawyers that the way the national council, legally regarded as the principal executive, is elected cannot be successfully defended when the Act becomes law. The changes to be put forward are intended to be the minimum necessary to avoid the risk of a challenge in the courts while preserving the structure as much as possible.

Action wanted on physics teacher shortage

The Institute of Physics is expected to urge the Secretary of State for Education to take immediate action over the shortage of both physics teachers and recruits to physics teacher training courses.

According to the last investigation conducted by the institute among university PGCE physics tutors, 14 universities out of 22 reported a fall in recruitment compared to last year. Out of these, 11 reported a substantial drop, and four a 40 to 50 per cent fall. In other cases, the words "very poor" and "down dramatically" were used.

The investigation also showed a discrepancy between student numbers on PGCE physics courses and the Department of Educational and Science quota of 30 per cent. The institute believes the real figures will be higher since this does not take account of failures or those students who opt for another career than teaching.

This last category is likely to be quite substantial, judging from the institute's own figures which show that 13 universities reported that at least one of their students was not intending to go into teaching.

In addition the investigation revealed that six universities had reported a lowering of the standard in applicants for 1985. Further comments showed that this problem was as much one of calibre as of poor degree qualifications.

The latest figures from the Graduate Teacher Training registry shows that even at this stage 29 university departments of education have vacancies for PGCE physics students along with 10 colleges and polytechnics.

Another investigation to be published in full in *The Times Education Supplement* this week shows that a fifth out of 270 schools had not been able to find a single suitable candidate willing to take a physics teacher's post, while others were forced to accept weak candidates.

Most vacancies were created by retirements, promotions and transfers but 12 per cent resulted from physics teachers moving to industry or commerce, invariably for better pay and prospects or to escape the frustration of inadequate resources.

This is confirmed by two articles to be published shortly in one of the institue's publications. Both point out that competition from industry for physics graduates is mounting again.

PARTY LINE

Behind the scenes of the Commons revolt

For the benefit of those who have accosted me in railway trains, street markets, and in the bar of the Blackburn Trades Club, I was not one of the 17. I came, I stayed, I voted. The 17 should have been there (even though some of them had good reasons for not being there) since their absence has provided a useful diversion for those sections of the press who would prefer to address any question but the beginning of the end of the Thatcher administration.

But even if the 17 had been present, the Government's majority would still have been 17 – which it was. Parliamentary arithmetic, when it comes to revolts by a Government's own supporters, is never a matter of two plus two equaling four. One reason why so many Tories rebelled was because there never, at any stage before the vote, appeared the remotest chance that the Government's majority would be down below 50; and that belief was greatly enhanced by the apparently less than frenetic way in which the Opposition was behaving.

The Government Chief Whip, John Wakeham, certainly tried to put the fear of God into potential rebels by telling them that the Government might fall. But Whips do that all the time. The threats of a Government defeat only increased the size of the rebellion, since they were not believed. If, instead of appearing to confirm the Tory rebels' belief that the Government's majority was as unassailable as ever, we had pulled out all the stops to get members back from their holidays, if we had detained two elderly and infirm Labour members who, for reasons of their health, never stay beyond midnight, if we had cancelled a well publicized morning press conference in Newcastle by preventing our spokesman from catching the night train to that city; if we had done all that, the word would quickly have reached the Tories.

Some of those who were ready to vote against would have abstained; some of the potential abstainers would have joined the Government in the lobbies. And word would have got back. There are no secrets in the House of Commons.

Exactly this was my experience during the long, tortuous passage of the Bill to abolish the Greater London Council and the Metropolitan County Councils. Potential rebels were many: making them real was the problem. We had our best day – a Government majority reduced to 23 – when the Opposition *appeared* at its most relaxed; when some people had been allowed home. On the other occasions – where the case for rebellion was just as good – we organized, held people back, and usually lost by over 100.

As for the top salaries debate itself, I would not have missed it for even the annual salary of the editor of *The THES*. It was Weatherill's Revenge. The Speaker owes nothing to the Prime Minister, who did her best to blackball him from the job. He could not have chosen four men in support of the Government more likely to drive their erstwhile colleagues into the Opposition's lobbies. Tim Eggar, a bright man, but too desperate for a job; Cranley Onslow, the chairman of the 1922 Committee, not as nice as he looks; Elton Griffiths, the member for the Police Federation; Nicholas Fairbairn, the eccentric former Scottish law officer; and Tony Marlow, whose inability to command respect on either side of the House seems to me unequalled; as is the vulgarity of his arguments. I was in tears (of mirth) during his speech.

"If, cumulatively, over a period of years, the cost of living doubles, for some obscure reason it is thought moral and right for the £4,000 a year man to get £8,000 a year, but insensitive and damaging for his more successful fellow citizen on 25 grand to get 50 grand . . . Highly paid comrades in Bulgaria receive more than 10 times the number of leva of their low-paid Socialist brothers. Is that what Opposition Members want?"

There were two points in the speeches of those supporting the Government. First, that Labour had done the same – an allegation which was conclusively demolished by Peter Shore.

The second argument was that concerning Terry Wogan. If he could be paid £350,000 per year, why could not the Lord Chancellor be paid £75,000? (Indeed, said Mr Eggar, he "deserves all that and more".) There is, however, a simple answer – at least for those of us who do not believe that all questions of morality should be subordinated to the market. Mr Wogan should not be paid £350,000 a year. No one should.

Jack Straw

The author is Labour MP for Blackburn.

Business teachers 'dynamic'

by Karen Gold

Staff teaching business studies at the Polytechnic of the South Bank are dynamic, enthusiastic, well-qualified and hard-working, according to an HM Inspectorate report on the department which has been a centre of controversy.

HMI looked at business studies in the faculty of administrative studies in November last year, a month before the former head of business studies Mrs Lilian Geach ended a long-running battle with the polytechnic in a £10,000 out of court settlement.

Mrs Geach had claimed constructive dismissal and was taking her case to an industrial tribunal, after taking early retirement in 1983. She claimed she was the victim of a ten-year campaign of harassment, by staff who were lazy, incompetent and Marxists.

In 1975 lecturers in the department went on strike amid protests about how the department was run; a £40,000 inquiry cleared Mrs Geach of complaints about her running of the department, except for one which was partially upheld saying that she had denigrated staff and used abusive comments.

The HMI report says the dynamism and enthusiasm of many of the staff associated with the HND and degree in business studies are to be commended.

Academic staff are very well qualified for the courses they teach; the majority of teaching and learning is at least satisfactory and in some cases good or excellent, the report says, although it does pick out cases of classes where students were too passive and where attendance was poor.

Standards of work, marking and grading were usually sound, although some HND work was too generously marked. Entry to the courses was very competitive – 1,600 applicants for 80 degree places – and wastage rates lower than in other public sector courses.

Accommodation and learning resources are of a very high standard and computer facilities sound. But the report says course management, monitoring and development and staff development need to be better organized.

PSB: Inspection of Business Studies by HM Inspectorate, from the DES Publications Despatch Centre, Honeypot Lane, Stanmore, Middlesex.

IBM 'leads on sponsorship'

by Jon Turney
Science Correspondent

Government has done its bit to help eliminate shortages of skills in information technology, and the initiative now rests with industry, says the third and final report from the skills shortages committee chaired by Mr John Butcher, under secretary of state at the Department of Trade and Industry.

The report points to two new measures taken to help improve the supply of properly trained information technology (IT) workers since the committee began work in April 1984: establishment of the information technology skills agency to be run by the Confederation of British Industry's education foundation; and allocation of £43 million from six government departments for extra engineering and science places in higher education over the next three years.

It adds that the IT skills agency must encourage companies to quantify their skill needs at each level to help the education system cater to their needs.

The new report also calls for more multidisciplinary IT courses, and suggests sponsors of training should consider setting up a central database with details of IT training currently on offer.

Mr Butcher said last week that the Government had delivered what was promised in the first IT skills reports.

"The education system has now opened its doors, it is now up to industrialists in every sector to make the new partnership work", he said.

The report asks the IT skills agency to look closely at areas of IT development, including advanced manufacturing systems, computer-aided design and software engineering. It says software development for large systems has been neglected in education and training. And it points to further critical shortages in the skills needed for communications network engineers.

The committee proposes that one way forward would be for concerned companies to form a sponsoring consortium – to help define the skills they need and the courses to meet the need. And the group hopes more companies will set up charitable trusts to fund educational projects, along the lines of the trust operated by IBM United Kingdom.

The report also emphasizes that plans for training should take into account the needs of IT users. Although the committee was set up largely at the behest of major IT supplier companies, the group points out that information technology products and systems are not ends in themselves, and prospective users also need to employ skilled graduates and technicians.

The committee concludes that a change of climate is now under way, bringing a far greater awareness of the economic importance of information technology.

Information Technology Skills Shortage Committee – final report, Signposts for the Future. Available from: DTI Library, Ashdown House, Room 101, 123 Victoria Street, London SW1.

Spending to be scrutinized

A group of nine institutions is to investigate from next November how colleges of higher education spend their money.

The decision by the group, which includes the colleges of Crewe and Alsager, Chelmer, Ealing, Gloucestershire, Harrow, Nene, Newman, Slough and Westhill, was taken at a meeting last week.

The nine, all members of the Standing Conference of Principals and Directors of Colleges and Institutes of Higher Education point out that this information is needed not only internally but to provide a better yardstick for comparison among colleges and between colleges and polytechnics.

For example the group says it knows that the colleges get £180 less per student than polytechnics, but it needs to know more about how the £150 million allocated by the National Advisory Body is spent.

The colleges say that many of the comparisons currently made are based on data which is collected for other purposes and which can be misleading.

The group is seeking the help of the Polytechnic Finance Officer's Group.

Later on the group is also hoping to look at other matters, such as the difference in funding methods between voluntary colleges and local authority maintained institutions.

Mr Ricky Brock, secretary of Thames Polytechnic bowls club, takes part in the club's 35th annual invitation bowls tournament. The club dates back to 1924, when it was attached to the Woolwich Polytechnic.

Colleges join forces on access scheme

The Polytechnic of North London has linked up with North London College to increase access into higher education for mature students.

The latest development in the North London Open College or ALLFA (Access to Learning For Adults) will enable students who wish to take applied economics or accounting for management in the polytechnic's evening degree scheme to take a special preparatory course in mathematics.

Those students who feel ill-equipped for the access course will be able to enrol for a portfolio preparation evening workshop run on two evenings a week.

Kingsway-Princeton College has cooperated already with PNL to provide an access course which leads directly into the polytechnic's evening degree scheme.

Plum at the centre of the lecturers' pay offer

by David Jobbins

The idea of merging the two lowest salary scales for further education lecturers has been at times in danger of becoming a shibboleth of trade union activity. It was adopted as a rallying cry by the extreme left within the National Association of Teachers in Further and Higher Education, and became a delicate issue for their political opponents.

But now, persistence by union negotiators has brought a sudden reality to what was beginning to seem a chimera.

Whichever way college lecturers vote on the provisional pay deal negotiated earlier this month, a key factor in their decision will be the employers' concession of automatic transfer for 14,200 staff stuck at the top of the lowest grade.

Union activists have long regarded the promotion blockage as a running sore, and the chance of removing it is the plum part of the package on offer.

On September 1, if the deal is accepted, 14,272 lecturers, more than 56 per cent of all Lecturer 1s in England and Wales, will step firmly on to the seventh rung of an incremental ladder which – if the structure is not altered in the meantime – will take them to the top of the Lecturer 2 scale by 1988.

Their arrival at that point, with 5,660 L2s already on the final points of the scale, would exacerbate the promotion blockage – currently already more than 11,000 lecturers – there too.

The prospect of more than 31,000 lecturers, a third of all college academic staff in the country, occupying the same incremental point is undoubtedly going to add a certain urgency to talks designed to achieve what the provisional agreement calls "longer term consolidation" to replace the "short term adjustment" of the automatic progression.

Ways of easing the existing blockage at the top of the L2 scale are to be devised by the officials representing the two sides, and with union and employers committed to producing a report on progress on structural reform by December, the situation set out above is certain to be hypothetical.

If both sides see the proposal merely as an interim stage towards wider reforms, it is also regarded as an important inducement to a settlement.

It is now 11 years since the proposal for a merger of the two scales was lodged as part of the evidence delivered by Natfhe to the Houghton committee. Houghton actually rejected the idea, arguing that there were advantages in having a promoted grade for staff teaching lower level work.

Some progress was made however – the creation of an extra point on the top of the L1 scale was at least a recognition of the problem if scant compensation for those lecturers whose careers were blighted by it.

The extent of the problem was dramatically highlighted in a survey compiled for the review group in 1983 which showed that of the 12,000 or so then at the top of the scale, 12 per cent had been there for ten years or more. Persistence was rewarded with an extra £330 for the "stuck L1s" last year. Now the employers have been prepared to concede this as the carrot to induce lecturers into a settlement while schoolteachers' negotiations remain deadlocked.

Lecturers will not make any formal decision until September, with a meeting of a salaries council to consider the membership's reaction expected by the end of that month.

If it is ratified L1s on the top point will receive:

- 5 per cent on their April 1984 salary backdated to April 1,
- transfer to the seventh point of the L2 scale from September 1.

Then on December 1, the group of "Stuck L1s" will receive the 2 per cent payable on condition that reports on structural reform and cost-savings have been presented, based on the April 1 salary of an L2 on the seventh point. Then, following next year's pay rise, on September 1 they will move on to the eighth point of the scale.

By then, employers anticipate, longer-term structural reforms will be on the way.

How a "Stuck L1's" salary will grow

	April 1984	April 1985	September 1985	December 1985	September 1986
Lecturer 1 scale	5690–10512	6207–11037	—	6324–11247	—
L1 on top point	10512	11037	11220	11433	11958*

* Plus annual salary increase for 1986

UNION VIEW

Hoping for a change of climate

Discussions on pay for the universities are in stalemate. The vice chancellors have not moved an inch from the offer of 4 per cent made in March. No wonder the announcement about the Top Salaries Review Body ricocheted around the university world. My phone has not stopped ringing.

It would be interesting to know where the chairman of Committee B, a deputy secretary in the Department of Education and Science, now stands. In a letter to the chairman of Committee A in February this year he said that the department recognized the importance of recruiting, retaining and motivating university teaching and research staff with appropriate quality. However, "the Government regards these as considerations relevant to pay negotiations but does not think that arguments based on historical or external relativities should be major factors in pay negotiations". In accepting the Plowden recommendations on top salaries, very substantially based on historical and external relativities, the Government has clearly changed its stance.

Both sides in the universities negotiations consider that a substantial improvement in the present level of academic pay is essential if universities are to maintain their academic standards. The DES must accept that the philosophy of recruitment, retention and motivation, while an important factor for the Government in setting public sector pay, cannot be easily applied to such a highly qualified group as university teachers. One of the problems is that in many cases the universities are the virtual monopoly employers of many university specialisms.

There is, however, increasing evidence of the difficulties being experienced in attracting and keeping staff of the highest calibre. The Advisory Board for the Research Councils is concerned enough to begin an investigation into the "brain drain" from the point of view of research funding. It would be naive indeed to think that depressed salary levels do not play a large part in that exodus. Even where, as in the Civil Service, there is little evidence of substantial staff changes, loss of morale is something all institutions have suffered from.

The Plowden Report recommended preventative action. Although the Prime Minister had previously been of the view that wastage rates of up to 12 per cent could be tolerated, she has bowed to the arguments put forward by Lord Plowden. Must the universities lose such a proportion of their best people before she recognizes the need for a similar response on academics' pay?

In further education, the local authorities have made a significant gesture of support for demoralized staff. The cost in a full year of their recent offer is 7.25 per cent, well above the Civil Service or local government, and almost double the offer made by the universities to their staff. Both groups are operating on a cash limit of 3 per cent.

The difference is that the local authorities have shown they are prepared to challenge the Government's philosophy and up the ante. The universities cannot opt out. The idea of a meagre settlement in the universities impressing the Government is now clearly laughable. I hope the vice chancellors will have the sensitivity to recognize that the climate has now changed.

Diana Warwick

The author is general secretary of the Association of University Teachers.

Malaysians told to fall into line

The Malaysian education ministry has told teachers they are expected to support only the government and the party in power following allegations of anti-government political education in universities and schools.

Commenting on reports that some teachers are giving active support to opposition parties, the deputy education minister, Haji Bujang Ulis, said teachers opposing the ruling party should not allow themselves to become confused over the concept of "neutrality" for government servants.

Neutrality did not mean teachers were free to support and work for opposition parties, he said. "Each and every civil servant is expected to support and work for the government in power."

It was the government's view, said Mr Ulis, that in a democracy the party which won the election and formed the government had the people's mandate, and as such, civil servants, including teachers, are in the employ of the government as well as the people. Teachers who actively support opposition parties, said the deputy education minister, should realize that it is the government who pays their salaries. Those teachers who disagree with these views and the "proper definition" of neutrality, should resign from their posts.

Mr Ulis added that he had directed the state education departments involved to submit reports on teachers recently alleged to have conducted political meetings in support of the radical Parti Islam Se Malaysia (PAS). Those teachers proved to have been engaged in such activities, he said, will face disciplinary action, "including dismissal".

Round one to the bureaucrats

You cannot keep a good bureaucrat down. Just when they thought they had escaped from President Reagan's proposal to put an income cap of $32,500 on federal student aid, American academics have been angered to find the self-same limit placed on national graduate fellowships.

These fellowships, authorized under the higher education act, provide awards to doctoral students in selected humanities, arts and social science fields on a "demonstrated level of financial need". The law makes no mention of an income cap, but now the education department has slipped it into regulations governing the awards.

Whether they will succeed in making it stick is a moot point. The post-secondary education subcommittee of the House of Representatives has now noticed the move, and is not amused. "We will probably be writing to the secretary to express our displeasure", said a member of the committee staff.

China wants more managers

by Geoffrey Parkins

In a bid to overcome the serious shortage of trained managers and executives in the country, China's universities and private enterprise have been called upon to expand still further the number of management institutes and courses to produce higher standards of training.

In May 1983, China had five management institutes, staffed by around 100 teachers, producing about 2,000 graduates annually. Today there are 81 institutes with a combined teaching staff of over 3,700, producing more than 5,000 managers and business executives each year, but the State Economic Commission says the quantity and quality is still not high enough to come anywhere near meeting the country's needs.

The committee said that institutes may offer full-time, part-time and intermittent study under credit system arrangements. Courses should include: computers, mathematics, technology, natural sciences, applied management science, international monetary affairs, economics and labour laws.

The committee added that at the beginning of the seventh five-year plan in 1986, all directors, managers and party secretaries of large and medium-sized enterprises would be selected from the courses.

The tumultuous years of the cultural revolution, when management training along with most other forms of education was severely neglected and the party took direct control of management responsibilities in most concerns, reduced the numbers of personnel with such expertise.

Most of China's older managers and executives have no professional training and they are being rapidly replaced by young graduates, usually engineers also without management training and precious little experience, who find it equally difficult to adapt to their new responsibilities.

Down to business . . . but student numbers are still failing to meet the demand

Another problem is that there is also a serious shortage of trained and experienced engineers, and industry can ill afford to transfer too many of these to management posts.

In an effort to meet the urgent needs of local industrial concerns many universities are setting up courses designed for individual firms. Xi'an Jiaotong University, for example, has recently set up three two-year courses on this basis for local industry, enrolling students with at least five years' experience in junior management or technical work who are thought to be suitable for greater management responsibilities.

The results so far have been encouraging, with about 80 per cent of graduates subsequently becoming factory directors, managers, chief accountants and works supervisors.

Peking Economics College has just recently set up a management consultancy service on a similar basis. The service includes helping local industry and businesses set up their own management training classes and plan their own development strategy. The college reports that the response from local enterprises has been good, with a large number of contracts being signed.

But it is clear that higher education provision in the management field is nowhere near capable of meeting the needs of all enterprises, and the majority will continue to find their own way by trial and error for some time to come.

Meanwhile, many of China's senior managers attended a month-long series of business lectures in Peking and other cities, which was jointly sponsored for the second year running by the Chinese Management Association and two US companies, Unison International and the Xerox Foundation. American postgraduate teachers have been brought in for lectures covering business strategy and methods of decision making.

Drive to meet call for technicians

by Peter Mauger

A new type of university has been evolved in China over the last four or five years to produce higher trained technicians.

Jinan Vocational University, for example, was founded in 1983 under the guidance of the Ministry of Education, financed by Jinan municipality with a capital grant of 7.27 million yuan and a World Bank grant of 1.3 million yuan.

The university runs three-year courses in civil architecture, engineering manufacture and textile weaving, and two-year courses in management, industrial accountancy and secretarial training. In addition to their specialism all students must complete courses in a foreign language (at present English), economics and mathematics.

Students are recruited from Jinan city senior middle schools and all are day students. They pay 50–60 yuan per annum, the city bearing the main burden of the cost, about 1,000 yuan. Enrolment is by the national unified student enrolment examinations though, as an institution ranking below universities, the entry requirement is less strict.

The roll of 443 students is planned to expand to 1,900 by 1990. Most of the 70 teaching staff are Jinan-born, recalled, in accordance with the usual Chinese practice, from universities all over China and even Tibet to set up this new university in their home city.

The university is at present housed in an old senior middle school pending the completion of new purpose-designed buildings.

President Guo Yong said that firms and enterprises in Jinan had shown such interest that many had already committed themselves to employ a number of graduates. They had paid the university 400–500 yuan for every student they intended to employ on graduation.

Seventeen of the 82 such universities established since 1980 have had World Bank grants to send staff abroad for advanced training. Jinan plans to send 16 staff abroad by 1990 to study, in addition to their six specialisms, environmental protection, computers, librarianship and foreign languages. They would very much like to send some to the UK but are daunted by the high fees.

Jinan, the capital city of Shandong Province, is expanding and industrializing rapidly, like so many Chinese cities. These new vocational universities seem likely to play an important part in improving the technical standards of the enterprises.

New law on university elections

from Burbara von Ow

MUNICH

The Kohl Government's plans for an amendment of the West German university law has made significant headway in passing a final hearing in the Bundestag committee for education and science.

However, the committee decided on more than 40 amendments, mostly proposed by the Christian Democratic (CDU) faction, of education minister Dorothee Wilms's original draft. The final version is expected to be passed with the majority votes of the ruling coalition parties in the Bundestag after the summer recess. The Social Democratic and Greens opposition parties opposed the draft on all points.

According to the CDU's education spokesman Klaus Dawcke, the most important revision made by the committee is the change of regulations for the election to university governing bodies.

Following the examples of Bavaria and Baden Wurtemberg, professors are now to be given an absolute majority on the panels choosing the university head

Dawcke said the government was following proposals by the rectors' conference which had called for stiffer guidelines for voting at all German universities.

At the same time, the revised draft maintained Wilms's proposal for separate university courses for specially gifted students, which are vehemently opposed by the Association of German Students (VDS). However, the decision whether to introduce such courses, will be left to the universities.

The committee also appealed to universities to take measures against the "continuing disadvantages" of women academics and called on them to achieve a more balanced representation of women.

Dorothee Wilms: overruled

Ivy League boosted as corporations step up aid

The federal deficit has its compensations for American universities. Big corporations, alarmed at the growing competition from abroad made possible by the soaring dollar, have begun pumping money into higher education in increasing quantities.

Since President Reagan came to power, corporate giving has increased by 128 per cent. Last year alone it rose by 14.5 per cent or three times the rate of inflation – to $1.27 billion.

The reason, according to Arthur Kammerman, vice president of the Council for Financial Aid to Education, is that companies realize that knowledge, intelligence and technology, are America's key assets. "We can't compete on a labour basis – we have to outsmart, out-think and out-technologize."

At the present rate of increase, gifts from industry will soon exceed those from non-alumni ($1.32 billion last year) and alumni ($1.31 billion). Both showed healthy increases over the previous year, but at a lower rate. Another, voluntary contributions to [illegible] funds totalled $5.6 billion in 1983–84, which was a rise of $440 million.

Harvard, with more than $125 million in gifts, easily took first place among the lucky recipients. Rival Yale could only manage $75 million, putting it in third place behind Stanford with $111 million.

Many corporations run matching-gift programmes, in which they match, in a ratio of one-to-one or higher, contributions made by their employees to universities. Although such schemes account for only about 9 per cent of gifts from industry, they are valued because they usually lack any strings.

Now, it is being alleged, some institutions are fiddling the books and submitting claim forms to match gifts that were never made, or even supplying money to employees so that they can make a gift which will then be matched. Some of the frauds have shown a touch of genius highly appropriate to universities, but the corporations have not been amused. They want academia to put its house in order, or that healthy flow of dollars may begin to dry up.

Teachers' pay blamed for fall in standards

from Hasan Akhtar

ISLAMABAD

All the 14 universities in Pakistan are faced with financial problems and limits on their resources which make it impossible to maintain even ongoing curricular activities, says Dr Rafiq Ahmad, vice chancellor of Punjab University, the country's largest.

Most of the government assistance to universities was spent on teachers' salaries and allowances, while campuses were "barren from inside", he said. Education standards were falling and despite the unprecedented number of experimental reforms, there was still no way to halt the decline. Pakistan's literacy rate had now sunk as low as 7 per cent.

Recent increases in teachers' salaries imposed an additional financial burden of around £65 million annually. The Pakistan government has now set up a ways and means committee to review the financial viability of universities.

Science faculties urge Star Wars boycott

from William Norris

WASHINGTON

During a month when America is recalling the testing and dropping of the first atomic bomb, and surviving members of the Manhattan Project are recoiling in horror on the television screens from the monster they created, there are signs that doubts are growing among US scientists about the country's defence and foreign policy. In increasing numbers they are publicly distancing themselves from President Reagan's "Star Wars" policy.

Two particular thorns in Mr Reagan's side are the universities of Illinois and Cornell. Faculty at both are circulating petitions proclaiming their boycott of the strategic defence initiative, and urging others to follow suit.

The Illinois petition asserts that the Star Wars programme is "technically dubious and politically unwise". It goes on: "We believe that the Star Wars programme represents, not an advance towards genuine security, but a major step backwards. As working scientists, we will not apply for or accept support from the strategic defence initiative organization, which funds Star Wars research.

"We encourage other scientists and technical personnel to join us in this refusal. We hope, together, to persuade the public and the Congress not to support this deeply misguided, dangerous, and enormously expensive programme."

The Cornell petition, voicing similar views, adds the fear that academic freedom will be endangered by excessive security restrictions on those who take part.

The petitions have gained considerable support from both faculty and graduate students, and are now being widely circulated among universities and commercial companies likely to be asked to take part in the project.

The Pentagon, which reacted to earlier objections from the California and Massachussets institutes of technology by publishing a document claiming that academic scientists were overwhelmingly in favour of the project, has maintained a lofty silence on the new protests.

Fees 'will reduce equality'

from Geoff Maslen

MELBOURNE

The reintroduction of fees for tertiary tuition in Australia would lead to an even less equal social mix among students than exists at present, according to an Australian National University researcher.

Dr Don Anderson, a specialist on equality in higher education, says similar conclusions have been reached in Sweden following recent studies there.

Commenting on proposals by the Australian minister for finance, Senator Peter Walsh, that fees should be reintroduced with means tested grants for poorer students, Dr Anderson said decisions by the Hawke government had already been counter-productive as far as equity was concerned.

Recent evidence showed that after decades in which there had been no change in the social spectrum of students, at the end of the 1970s, a shift had begun towards more equality, Dr Anderson said. During a period when demand for higher education slackened, the lowest third of the social order gained ground.

Dr Anderson said this was in contrast to what was happening in a number of other countries. In Sweden, where there had been a decline in the value of student grants, the social profile of the student population was much more unequal than in Australia.

A recent Swedish study had shown that for individuals from homes in which one of the parents had a university degree, the likelihood of beginning a post-secondary education was seven times greater than for individuals from working-class homes, while the likelihood of completing a university degree was as much as ten times higher.

In the United States evidence was emerging of a social regression in participation, due to sharp rises in tuition fees.

Dr Anderson said that when Australian data became available for the past three years, they would almost certainly reveal a slackening if not a reversal in the democratizing trend.

The intense competition for places, rising entrance scores, grants which met only about half of an independent student's costs, and tougher rules for older students seeking entry, had combined to favour those groups which had traditionally benefited from higher education.

"When all the evidence from economic, sociological and socio-psychological studies is put together, the most likely conclusion is that financial barriers do inhibit the enrolment of students from certain 'disadvantaged' categories", Dr Anderson said.

An evaluation of fee abolition had pointed out that a substantial shift towards democratization in higher education would require changes elsewhere in the system, not simply the removal of the barriers at the point of entry. Almost all the attrition from school students from poor families occurred in the middle years of secondary schooling.

"If participation is to be more equal, the bright poor will have to be helped to the starting gate, financial assistance during tertiary study is necessary, but not a sufficient condition for reform."

In a South Australian study carried out by the tertiary education authority in that state, results showed that abolition of fees had not provided children of low-income families with greater access to higher education.

The 10-year survey showed that the socio-economic profile of students in higher education had not changed since 1974. Upper-class students still outnumbered their counterparts from low-income families by three to one.

The study was made by the director of academic planning for the state, Dr Russell Linke, who ranked all students enrolled since 1974 in three socio-economic groups. The socio-economic discrimination was most marked in medicine and law. Students from the upper third of Adelaide's metropolitan population were 20 times more likely to study medicine than those from the lower third.

Too many specialists spoil medicine – Kennedy

Senator Kennedy: lending weight

from William Norris

WASHINGTON

There are too many chiefs and not enough Indians in the American medical profession. At least, that appears to be the view of Senator Edward Kennedy, who is lending his considerable weight to a Bill now before Congress which would cut federal spending on medical education. Less funding, Senator Kennedy argued, would encourage teaching hospitals to limit the number of specialists they train, and concentrate instead on "primary care doctors".

The trend towards medical specialization in the United States encouraged by the considerable sums of money that such doctors can make, has begun to cause a shortage of general practitioners, especially in the rural areas. The Bill aims to redress the balance by freezing direct medical education costs for one year, and limiting support of residency programmes to five years, or until initial state medical board requirements are met. It will also eliminate funding for foreign medical school graduates who are not US citizens.

Teaching hospitals will be compelled to affiliate with a medical school, and to enter an agreement with the Secretary of Health and Human Services to limit the number of specialists they train. The estimated savings are $600 million over three years from the 3 billion spent on medical education each year from the Medicare trust fund.

Opponents of the measure during its committee stage argued that the bill would "distort the market place" and mean government involvement in consumers' choice of medical services. "Sixty three per cent of medical education is funded by the government", retorted Senator Kennedy. "We're in it up to our ears. Under Medicare, that's taxpayers' money."

The bill now goes to the full senate for approval.

'Socially damaging' reforms go through

Changes in Poland's higher education Act, passed by the parliament (Sejm) last week, will bring "deep and irreversible social damage" to Poland according to Edmund Osmanczyk, one of a small group of deputies who resisted the passage of the amendments.

Osmanczyk, a non-party member maintains that it was improper of the parliament to vote on such important changes on the eve of its own dissolution. Elections are due on October 13 and the amendments, he urged, should be carried over until the next session. The current parliament, elected in March 1980, has already been prolonged by more than a year. Osmanczyk's proposal would have quashed a major criticism of the way the amendments have been handled, namely that the same parliament which in 1982 voted to establish university autonomy, has now, under pressure from the government, voted to destroy that autonomy.

Presumably, the government's wish was to hurry the amendment through during the vacation, when reaction from the academic community would be less concerted.

Osmanczyk further accused the minister of science and higher education, Dr Benon Miskiewicz, of refusing to listen to those who opposed the changes. "In this stubbornness there is a method of ignoring the opinions of educated people, social councils consisting of high-ranking scientific and social authorities in the key fields of our life," he said. He reminded the parliament that "the social and moral authority of our scholars must be the stable value of our culture and state".

The amendment was duly passed by a vote of 338 to five with nine abstentions. Reaction from the universities cannot be expected until next term, and may depend to some extent on the exact text of the amendment.

According to some reports, students from several universities have been planning strikes and protests but it is not clear whether these were intended as a protest against the changes in the Act or against the proposed abolition of the student self government committees. Since, shortly before the amendments went before parliament, it was announced that the government was prepared to drop this point, the students may feel that any protest will now be ill timed.

During the past few weeks, the government has tried, cautiously, to woo the academics by apparently yielding on a few less essential issues, by assuring the academics that under the amended law they will still have more autonomy than the Catholic University of Lublin, or the theological colleges, and by sharing on television a documentary on the changes to the French higher education system at the beginning of the 1970s which was, said the film, strongly opposed at the time but is now generally felt to have been a good thing.

Student convictions quashed

from Wachira Kigotho

NAIROB

The Kenya High Court has quashed the convictions of 14 University of Nairobi students who were imprisoned for six months on March 8, after being found guilty of converting a university Landrover for unlawful use during disturbances which led to the closure of the university.

The students had been jailed by the chief magistrate Mr H. H. Buch after deciding not to participate in the proceedings when they learnt lawyers had withdrawn from the case. The four advocates had alleged that they were not given time to prepare for the case.

Two judges said that they were "of the view that it will be unfair to order a retrial as justice will seem not to have been done". He added that in such cases, "the sentences in such convictions are set aside". Justice A. M. Cockar ordered that any of the appellants still serving sentence should be released immediately.

Twelve of the students had completed their sentences but two who had been found guilty of possession of cannabis and sentenced to a further six months appeared in court for the sentence to be set aside.

The most significant defence put forward was that an opening address by the attorney-general, Mr Justice Matthew Mulli, before the hearing started at the chief magistrate's court, had been irrelevant and contained prejudicial matters.

In what was seen as a measure of the seriousness with which the government treated their behaviour Justice Mulli had described the students as a group of privileged youths who showed disregard for law and in defiance went out to demonstrate arrogance and lawlessness, especially when they commandeered a vehicle.

Election controversy over minister's 'free zone' article

from Donald Fields

HELSINKI

Weeks before a general election that could go either way Mrs Lena Hjelm-Wallén, minister of education in the Social Democratic government that has ruled Sweden since 1982, has aired controversial views on the position of universities and the matriculation examination.

In a 2,000 word article for the government's sharpest daily critic, the independent conservative *Svenska Dagbladet*, Mrs Hjelm-Wallén advocates "free zones" for the universities. While not defining the term precisely, she speaks of units that would make scholarship and research more simple and effective by being excluded from a web of regulations. She will approach rectors and governing bodies with this end in mind.

The idea is consistent with the way the Social Democrats have committed themselves to more autonomy at local level. In December 1983, for instance, a Bill was enacted to give more decision-making power to the universities, entailing adjustments of their internal organization. The Social Democrats also pride themselves on exempting university teaching and research from their widespread spending cuts while lopping 20 million kronor (£1.75 million) off administration.

Where Mrs Hjelm-Wallén will be disputed is in her defence of bureaucracy in the shape of regional boards and university governing bodies partly manned by representatives of local communities and business. Intermediary red tape has been coming under fire from critics as "unnecessary".

The National Board of Universities and Colleges, a buffer between the government and seats of learning, has revealed that it will advise the scrapping of regional boards. Among 11 proposals designed to save five million kronor (£440,000) a year, this would allow the universities more autonomy, ease the pressure on their resources, and still allow county representatives a say in their running.

Mrs Hjelm-Wallén has raised objections of another kind through an interview she gave to the Swedish news agency TT. Reacting to the hesitancy of many matriculants to take up degree courses, she advocated a maximum of seven years between matriculating and university entrance. The professional union federation SACO/SR argued that it would be unreasonable to invalidate examination results for people aged only 25.

With committees now investigating university admission and student finance, the minister argued that entrance should be simplified, with more local influence.

Other main points in Mrs Hjelm-Wallén's article, include rejection of the argument that less quantity would mean more quality, insistence that today's young Swedes should have the same access to higher education as their parents enjoyed, more equitable recruitment of staff by social class and sex, and a bigger say for small institutions.

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Accent is on work

A friend of Jean McNicol's has drawn a cartoon of her with a bubble above her head reading: ". . . Scotland . . . whinge . . . whinge . . ."

It seems there is nothing like Oxford University for bringing out one's latent nationalism. "Everybody makes fun of my accent. There aren't many Scots around – and most of them are posh Scots who went to Eton."

Jean is currently back in the old country, working as a receptionist in a Glasgow health centre. Oxford students are not permitted to work for more than six weeks, in order to have time for their heavy vacation reading lists, but Jean has been spurred to take a job by "a nasty letter from the bank manager".

She has had to borrow money from her parents for next term – Trinity College, where she has spent the past two years, obliges students to move out for the final year, and Jean has had to pay a deposit and month's rent for a house which she will share with four other students. She is looking forward to the freedom of a flat, but foresees problems over the cleaning and washing up.

Jean was delighted by the Oxford dons' vote against awarding Mrs Thatcher an honorary degree. "A lot of people went on about precedent, but we felt principle had to go before tradition."

Jean has had no exams during the second year of her English course, apart from termly "collections", college exams on vacation reading. Her tutors have warned constantly against "second year syndrome" where students do no work; she thinks that next year she will wish she had done more. She has not been slacking, however. A tutor accused her of playing too safe, and she has begun producing essays on subjects such as Jane Austen as a feminist.

Appropriately, Jean is to be women's officer on the executive of the Labour Club next term, and is also on the women's committee of the students' union.

She was in the 5,000-strong student demonstration which greeted the prime minister and Sir Keith Joseph on their visit to Oxford this session.

"It was quite frightening. The police went very much over the top, kicking and punching people. They arrested about 85 students, all of whom were acquitted."

Most of the Class of '83 are now enjoying their last real break before final examinations and the search for a job start to cloud the horizon. A number have already had their first interviews with careers services.

This progress report concentrates on 13 of the original 22 students. Some of the absentees have taken extened/trips abroad, others have dropped out of the exercise and some have simply proved impossible to contact over the summer. Eva Lartey, for example, is taking a well-earned break with relatives after spending the early part of the summer doing clinical work for her dentistry course at Manchester University.

There will be a further report in the new academic year, which will focus particularly on some of those who do not appear here.

Making the right choice

Looking back, Emma Jane Wilkinson says the second year of her course has been far more difficult because for the first time she seriously began to question whether she was on the "right path". This, she points out, is a state of mind which also affected her fellow students.

"Luckily though on reflection, I have decided that teaching and a primary BEd in religious studies is indeed the right way to proceed," she says.

But she adds that there have been moments when she wished her course was only three years. "However that was a reaction of the moment, and I am still convinced that in the long run, it is better to do a four-years honours degree."

However Emma Jane is much more critical of her studies than previously. She is still pleased with the choice of Bishop Grosseteste College, but has been annoyed by the sometimes repetitive work, and the lack of teaching practice in the second year.

"We had only half a day a week in school. It was enjoyable but no real experience because it consisted of groups of four children, and therefore was a false situation. Fortunately there is a lot of teaching practice in the third year," she says.

Another aspect which has frustrated Emma Jane, is that she has been kept kicking her heels in college without much to do, after she had finished her exams.

"It was depressing really, because the exams went quite well, and I felt much more confident than last year. But when I finished them I was really longing to go home, expecially as I had not managed to go back there at all this term because of the pressure of work. We had to stay, however, because the first day of the next term always takes place in the current one," she said.

Emma Jane has not participated in any demonstrations – there have been none in the college – but she did notice that materials were running rather low. She is not quite sure whether this was to do with cuts or for other reasons.

For the first time she has also found it difficult to live on her grant. She thinks it is partly because she was living outside college. Next year she is moving back to the halls of residence to her single room.

"Although I enjoyed sharing with friends, I am really looking forward to being on my own a bit and not having to spend so much time studying in the library, she says.

Another drain on her finances has been a requirement to purchase equipment for her third year studies. So far this has cost her £30, and she reckons that was a substantial amount to find. But it has not led her to being overdrawn or having to borrow from her parents.

This year because her parents have already been on holiday, Emma Jane is going to Worcestershire to spend a week on a barge with friends.

Theory first, now practice

Next month, Catriona Corfield begins a year working in a Dumfries knitwear company, part of the Pringle group.

She has spent most of her six-week vacation staying at home in Edinburgh, with a few days visiting relatives in the north of Scotland.

She is looking forward to the industrial placement part of her four-year BSc at the Scottish College of Textiles in Galashiels – she has found the first two years concentrating on theory with little practical work.

The second year of her course in textiles and clothing studies has been much harder than the first, she confesses, but she has found the subjects making more sense, and has passed all the exams.

She is the first Galashiels student to be employed by the Dumfries company, and is not yet sure what her work will be. "They mentioned quality control a lot at my interview." Many students on industrial placement last session have been offered permanent jobs by their firms.

College staff visit students during their first two weeks and before Christmas, with students producing monthly reports on their work. The pay will be more than the student grant, says Catriona, but her solvency will depend on how much she has to pay for accommodation, not yet organized.

She has spent this year in a self-

catering residence, sharing a flat with five other young women, and despite the work has managed fairly regular forays with her flatmates to discos and films.

The college affiliated to the National Union of Students after Christmas, a move which Catriona objects to. "I didn't see that much point, and I haven't seen anything of benefit so far."

She admits that very few students opposed affiliation, but is unhappy that there were no anti-NUS speakers at debates preceding the move.

Two years on – and only half-way

For Jo Coughlin (left), two years up is still only half-way toward her qualification in speech therapy. Studying at South Glamorgan Institute of Higher Education in Cardiff, she has passed all her exams without trouble so far, save for a linguistics paper she had to resit at the end of last summer.

Her second year saw a closer acquaintance with the day-to-day work of her chosen profession, as well as deepening her academic understanding. She spent at least half a day a week working with children in clinics, as well as witnessing cleft palate operations in Chepstow. Next year she will work more with elderly patients.

She and two other students now share a house on the far side of town from the college, and will stay there next session. So far, their money has stretched, although they found heating costly in last year's bitter winter weather. "We have electric fires, and the meter whizzed round and round." she has also found the journey home more expensive under British Rail's new fare structure; she tried it once on the bus, but the roundabout route and a drivers' dispute made it a very long trip.

She will spend some time over the summer doing voluntary work with clinic groups in her home town of Warrington, as well as going on holiday with her family. "We're going up to Scotland and round the islands, so we'll probably be up a mountain or two". Then back to Cardiff for the second half of the course. She has heard that jobs are gradually getting harder to find, but the problem is still far enough away not to demand too much attention. "I've got a lot to do yet".

This time last year, she felt she didn't know what speech therapy was all about. Now she has a much better idea, and she is still committed to the subject she first took up after seeing her grandfather in speech therapy after a stroke. She doesn't expect the next two years to change that.

When the going gets tough

The academic pace hotted up for Rebecca Dodman, studying modern languages at Stirling University. "It certainly got a lot tougher this year compared with the first. It was not so much the quality of the work but the quantity – there was just so much to do."

Rebecca dropped German, one of the three languages she studied in her first year, and is continuing with French, her first love, and Spanish. The increased workload didn't inhibit her performance – she passed her examinations sufficiently well to be certain of following the full five-year honours course.

Rebecca aims to concentrate on French and is waiting to hear where in France she will spend her eight months as a language assistant at a school or college.

"I am looking forward to this although it will be very different being totally on one's own. At least at college everyone is in the same

boat but there I will be the only person.

"We may not be provided with accommodation so we may have to start looking for somewhere to live as soon as we get there."

Although the end of the course is still a long way off – Rebecca will still have two years to go when most of the class of '83 will be shaking academic dust from their feet – she has been giving serious thought to a career.

First thoughts of interpreting have been replaced by translating – preferably in France.

Exam fears unfounded

Kenneth Maclenn left for three weeks at army cadet camp at the beginning of summer filled with apprehension. His exam results had not yet come through, and he admitted: "They certainly weren't the Sunday school picnics that the first year finals were."

Ken, studying for a BSc in electronic and electrical engineering at Robert Gordon's Institute of Technology in Aberdeen, continued gloomily that after cadet camp he would be at home in the north of Scotland until the beginning of term – "if I get back".

His fears proved unfounded. Not only is he in the top 10 of a class of over 50 with an average mark of more than 70 per cent, he is well above average in the two exams he found "particularly rough," physical electronics and electrical theory.

The BSc is a four-year course, and Ken has as yet given no thought to a prospective career, although he assumes the careers guidance teams will descend on the students at the beginning of next session.

He enjoys the course, but finds the work taking up all his time. He has no idea whether education cuts have led to a deterioration in union facilities since the only time he has gone out was at the end of this session after the exams.

On the pitch and on the demos

It has been a year of exams, student sit-ins, and football for Stephen Reid, now aged 20, and at the end of his second year, studying business and computers at Queen's University, Belfast.

During the summer vacation, Stephen is moving out of halls of residence and into digs with three friends. He suspects that catering for himself will prove too time-consuming having got accustomed to meals in hall, and admits he will probably live on fish and chips from the local take-away.

He is spending one month on a holiday in Europe with university friends, but has to return to resit an exam in operational research – one of his subsidiary subjects. Exams loom large in the QUB science faculty, where students have to sit a batch each year. Stephen failed only one out of a total of seven exams, and is confident he will pass it next time round.

Important landmarks in his year have included taking part in student demonstrations against higher education cuts. These have directly impinged QUB students who have suffered cuts in their grants, travel grants, and in library opening hours and in the supply of periodicals.

Stephen joined in a big student march which accompanied a sit-in at the library, in protest at cuts in the service. On another occasion some of his contemporaries brought the entire university to a standstill by sabotaging the administration department. Stephen was playing football at the time. This is one of his main activities, and he plays for the university team.

The protest had its effect and will result in the library staying open longer on Saturday, and being open on Sunday. This will make a big difference to Stephen's life: "I'll need to use the library at weekends even more now that I'm moving out of halls of residence, because I won't be in such a good environment for study. I won't have my own wee study lamp, and my own wee bookshelves any more."

However, despite his involvement in the protests, he does not consider himself to be a militant. He says most of his contemporaries are also socially and politically aware, which is a feature of student life in Northern Ireland. For example, he says, when university cuts are made, which lead to reductions in student numbers, these have racial and religious implications.

But Stephen is honest enough to admit that his views may change when he stops being a student: "It's easy to be a socialist when you are on the breadline, but when I start earning money, maybe I'll become a capitalist."

Because he is on a four-year course, Stephen has not yet started to plan his career in earnest. Much depends on imminent decisions as to whether to continue either with pure business, pure computer studies, or with a joint honours in business and computers.

If he continues with computers alone, he will take a year out to gain work experience in a company such as IBM or ICL, or in a Northern Ireland firm. Alternatively, he is hopeful that his studies could be put to use in a business firm. For example, he could work with data based management systems, or stock control.

Competition is high, he says, with two graduates chasing each job in computers, and it has become increasingly important to get a good degree.

Behind the camera

Adrian Silas has put aside his initial anxieties about giving up a course at Goldsmiths' and delaying beginning his course in film studies at the Polytechnic of Central London.

"The best thing I have ever done," is his verdict on the switch in academic midstream and the possibilities that are now opening out before him.

He has his sights firmly on a career in film production and believes that the PCL course has provided an excellent starting point. Of course he has some criticisms – too much theory, too little practical film work.

But his portfolio is beginning to bulge with a 15-minute narrative, a pop promotional video for his brother Douglas, and a documentary on rate-capping, with plans for a longer film story of the volatile life of an unsuccessful actor.

Adrian has moved into a flat with his girlfriend, Lisa, who qualified as a staff nurse during the year, and is specializing in accumulating kittens.

Her salary has helped but he has supplemented his minimum grant of £205 with several weeks of vacation work working with elderly people for Greenwich social services department.

Breaking the law . . .

Surviving on her grant has become a very real problem for Balliol law student Kate Leonard who was forced to find part-time work as a cleaner during last term.

She carried out paid work for the last six weeks of the term working for two mornings and one afternoon a week in old peoples' homes. "It was not such hard work but it meant studying in the evening and losing concentration sometimes in the afternoon," she said.

She saved enough by this means to pay her flight out to the Canary Islands for a month in the summer where she is teaching English to Spanish teenagers.

The college also runs a credit system which has seen her through the difficult patch. It will provide books of vouchers which do not need to be repaid until the following term.

There are good prospects for Kate ahead, however, as she has been accepted for law school in London from the year after next.

"I decided to take a break and travel abroad to teach English. It is a relief to know that I've got something definite after Oxford.

"I am not 100 per cent sure what I want to do eventually but until I know I definitely want to be trained in some field. There are so many fields of law that it is difficult to decide," she said. She is looking forward to next term when she does political philosophy and family law as the latter especially appeals to her.

An end to the course

A postgraduate course in textiles is the next aspiration of Lyndsay Fergus who finishes her studies at Camberwell College of Art next year.

She has applied to both the Royal College of Art and Goldsmiths' College and meanwhile she is struggling with the advantages and disadvantages of being the one of the last students on a degree course which is being closed.

"In some ways it is better because there is more studio space and you get all of the tutors' attention. On the other hand the cloth is starting to run out and not being replaced by the college," she said.

She went on an exchange visit to the school of decorative arts in Paris for six weeks and was put forward by the college to design a stage set.

An alternative production is being staged of *Elmer Gantry* in a tent near the Chichester Theatre and she will design the stage and make-up as the work experience element of her continuous assessment.

"I told them that I had not done any stage design before but they did not seem to mind," she said. It is unpaid except for expenses so she will be short of money over the summer especially after a spending spree in Paris.

At least she has been offered a bed in a friend's caravan which will provide her with cheap accommodation.

Accommodation in London has been a headache for Lyndsay this year. she moved out of her halls of residence into a block of flats owned by a charitable trust and spent time and money doing up the flat.

Now she has been moved without notice into another flat which is in much worse condition and has no bathroom."

"It is a bit annoying because I had just finished getting the other flat straightened out but they have given us some paint to repaint the new flat," she said.

Awaiting her results

Sarah Dudley has just come to the end of her first year at Goldsmiths' College, London and is awaiting – not without some trepidation – the results of her first year exams.

She changed to Goldsmiths', where she is studying psychology part-time, after deciding to leave London University's School of Eastern European and Slavonic Studies.

Sarah went back to university at 26 and she now finds studying part-time while working during the day a much more acceptable way of doing a degree. Commuting to Goldsmiths' from her city centre office is a problem however, and she may transfer because of this.

She admits to terrible exam nerves. "I was a nervous wreck for weeks before the exams. I was also really cross with myself because when I went into the exams, I got the perfect questions but because of the excitement, my mind went blank and all the names and dates which I knew off by heart just went out of my head.

"It was like going to the fair and seeing the Big Wheel and wanting to go on it, but being too scared."

Tonsils prove an unwelcome setback

The best laid plans of Paul Smolinski for a relaxed run-up to his final year at York University have gone badly awry.

After two summers working in a bank, he was determined to have a holiday before getting down to the economics again. Instead, he will be languishing in hospital in York having his tonsils out, which is doubly inconvenient since he has three pieces of work to submit in the first week of next term, all of which count towards his final degree.

Tonsilitis caused him to miss three weeks of last term and he is busy making up the lost time and preparing his essays in the evenings. By day, he is back at the bank gradually getting his finances back in order after an expensive year.

Work at the bank has become more interesting since this year Paul has been made a cashier for the first time, working at a small sub-branch in Newcastle. "There are only four staff so it's completely different from last year, but it makes a nice change," he says.

Having had his first interview with the university careers service last term, he is also giving some thought to a full-time job with the bank after graduation. Colleagues at the sub-branch are encouraging him to apply for the graduate training scheme and he sees this as an attractive alternative to accountancy, which seems to claim the lion's share of York's economics graduates.

Resits and an overdraft

The summer vacation is not going to be a time for relaxing for Kirsten Taylor-Duncan who has just finished the second year of a five-year BA in landscape architecture at Edinburgh College of Art.

She began work in a Glasgow architecture planning office the Monday after term ended, largely because of "a very uncompromising bank manager". She also faces three exams at the end of August: she has passed five, but has a resit in landscape practice, and postponed exams in turf culture and geography.

Many of her class have resits: rumour had it that because of the education cuts, the college was to throw out five of them. "Our tutors assured us that was rubbish; they said if anything, they wanted to increase numbers because if they fell, they risked losing a member of staff."

Kirsten also has to draft a 5,000 word dissertation by the beginning of next session, a practice run for the final year.

Her lifestyle has changed from the

first year, she confesses, when she worked constantly and virtually never went out. "This year I was determined to taste the other side of student life." She fears her work has suffered, but has passed all the course's design and project work which is continually assessed.

In September
The Times Higher Education Supplement
published a 4-page analysis of the joint statement from the University Grants Committee and the National Advisory Body regarding the basis for considering the present and future role of higher education in our society.

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BOOKENDS

Undeterred but not unarmed

Paul Flather on Anthony Kenny, the prolific Master of Balliol, who is having five books published in six months.

Anthony Kenny at Balliol – a comfortable seat from which to question authority

Anthony Kenny was 14 when the bomb was dropped on Hiroshima and Nagasaki 40 years ago. He was on holiday with his uncle, the biblical scholar Alexander Jones, and another Catholic priest. He remembers that they looked at each other after reading the newspaper as if to say this could never be justified. The bombs cast a deep shadow over the end of the war in Japan – a strong contrast with the unbridled joy which marked the end of the war in Europe.

That shadow has stayed with Kenny. He had already decided to enter the Catholic priesthood, and in 1949 he entered the Gregorian University in Rome and then the English College. In 1957 he went to Oxford to finish his thesis on the language of religion. Here he encountered a classical polemical pamphlet, *Mr Truman's Degree*, opposing a proposal that Oxford should grant the United States President an honorary degree on the grounds that he had been responsible for grand murder in 1945, whatever the excuses or justification.

The pamphlet had been written some years earlier by Elizabeth Anscombe, then a lecturer at Somerville College, now professor of philosophy at Cambridge. Truman got his degree after an overwhelming vote in Congregation, the dons' parliament. But the pamphlet remained in currency, avidly read because it set out clearly the traditional Catholic teaching on the wrongness of deliberately killing non-combatants in war.

It led Kenny to reflect deeply on the "just war" tradition. He notes wryly that just one hour in seven years at the Gregorian University had been devoted to study of the ethics of warfare. In the late 1950s with the Aldermaston marches making headlines, and the Campaign for Nuclear Disarmament growing, it was natural that Oxford students were drawn to discuss the morality of nuclear policies.

A small group of Catholic clergy had begun to worry about nuclear issues but the majority, like the bulk of society, had become hardened to the existence of the Cold War. Kenny never joined CND, finding too many pacifists and too many Marxists within its ranks for his comfort, but he did begin to challenge some of the conventional views within the church.

In his recently published autobiography *A Path To Rome* (Sidgwick and Jackson £15) he quotes extensively from his correspondence with the various editors of the *Catholic Herald*, the *Catholic Gazette* and *The Tablet*, and with leading clergy, including Cardinal Heenan. It provides a fascinating insight to the debates of the times, culminating for Kenny in the publication of *Counterfeit and Countervalue*, his most explicit statement of commitment to nuclear disarmament, coming out at the time of the Cuban Missile Crisis. He was rebuked, albeit in friendly style, by Cardinal John Heenan and promised that the issue would be raised at the next Vatican Council. It never was, and soon after Pope John died.

For Kenny though the debate had an important result. It acted as a catalyst spurring him towards his break with the Catholic church and his return in 1963 to the lay state. The final break centred on more substantial doubts he had over the existence of God, transubstantiation, and Papal authority.

Tony Kenny then became an academic philosopher, establishing his reputation with *Action, Emotion and Will* (1963), and over subsequent years becoming an authority on Aristotle, Aquinas, Descartes, and Wittgenstein, on his way to becoming Master of Balliol.

When the nuclear disarmament debates started up afresh in the late 1970s he too returned to the fray, recently becoming a member of the Just Defence group, which includes academics, military brass and clergy, all dissatisfied with current deterrence theory and dedicated to finding an alternative strategy around the notion of "defence without the bomb".

Last year Kenny was involved in a seminar series in Oxford on the ethics of deterrence with David Fisher, a policy specialist on secondment from the Ministry of Defence for a year. Both have put their ideas into print, Kenny in the *Logic of Deterrence* out this week (The Firethorn Press £4.95), his most comprehensive statement aimed at provoking serious review of the disarmament issue, and Fisher in *Morality And The Bomb* (Croom Helm), putting the other case.

The book is divided into three sections: the ethics of war, the logic of deterrence, and the realities of disarmament, and sets out to produce a programme for disarmament by slow, steady, stages. It sets out to link two widely shared premises: first, commonly put by bishops, most forcibly by the US National Conference of Catholic Bishops, that a nuclear war would destroy the very values, both material based on standards of living, and political based on freedom, that one sought to protect by going into such a war. And second, a view put most clearly by Mrs Thatcher, that you cannot possess a deterrent unless you are prepared to use it at some point.

Kenny believes that it is theoretically possible to possess nuclear hardware which you are determined never to use, and yet have a persuasive effect on potential adversaries. "It is legitimate to hold nuclear weapons as bargaining counters but it is not legitimate to hold on to them if you intend to use them if you get drawn into a quarrel with an enemy," he says. What actually deters an opponent is not the threats from Government but the power of total destruction. What he advocates in his new book is, by careful, planned stages, "deterrence without use" and then "defence without deterrence".

He believes that this is the most important moral issue facing the world today and his book is unashamedly aimed at "both sides" in the public debate to make them think more seriously about disarmament. He hopes the unilateralists will be led to think about the concrete steps that need to be taken say if a Labour government committed to disarmament came to power, and he wants the anti-unilateralists to review their traditional cry against "going naked into the conference chamber".

In some ways he is seeking to prepare the ground for a compromise between the two positions. But he is doing so as a professional philosopher motivated by morality and civic duty to try and show there are more logical positions on the disarmament spectrum that can also be occupied. He does feel it is his duty to put the debate into its moral and philosophical context without being so abstract as to be less than useful, but not of course to produce a definitive programme. That has to be left to the arms negotiators versed in the various technicalities and economics of the debate.

Finally he is pressing another idea, an important part of the Just Defence group strategy, that nations should not just swap nuclear weapons for conventional arms but develop an entirely "non-provocative" form of defence. In this way, Kenny argues, the Soviet stand on nuclear weapons could be influenced. An unambiguously defensive posture based on anti-tank and anti-aircraft weapons rather than new tanks and planes is now technologically feasible, cheaper, and likely to strengthen the hand of dovish elements in the Kremlin once the age-old fear of a land-based invasion of Russia does not exist.

Kenny has been prolific. In six months he will have five books out. The sequence began in March when the 63rd Master of Balliol completed a book on the thirteenth Master, John Wycliff, in the Oxford University Press Past Masters series, to mark the 500th anniversary of the dissident cleric's death. In May a translation of Wycliff's work *On Universals* appeared, surprisingly its first publication despite some 40 volumes of works mostly though Wycliff's attacks on bishops and the Pope. Then came the autobiography, and next month a collection of essays in philosophy and public policy, *The Ivory Tower*, including his 1962 article on nuclear disarmament, will be published by Blackwells.

But of all the books it is *The Logic of Deterrence* which could make the greatest impact. Certainly Kenny pinpoints a number of significant factors today which contrast strongly with the general feelings of despair and disillusion which marked the anti-nuclear campaign in the 1960s when it found itself universally ignored. First the disarmers are in good company, supported widely by academics, clerics, and most important of all senior generals and military figures such as the Generals for Peace group.

Second, the focus has switched from simple protest and objection to consideration of real alternatives. As Kenny puts it it is no use merely condemning CND or Nato without proposing a real alternative. Third, more people are more aware of the dangers, at least partly woken up by the US posture in recent years away from established deterrent theory based on Mutually Assured Destruction (MAD) to nuclear war-fighting, the belief a limited war could be fought and won. The increasing number of academics joining the debate – on both sides – is witness to this.

In his autobiography, which ends dealing with the time up to his departure from the church, Kenny sees himself as a failure. It is the story of a man pursuing an ideal, and growing disillusioned with that ideal. But that view can hardly be sustained now, 20 years on. He acknowledges that he has found real happiness, (he is now married with two sons) and Balliol is a much more comfortable seat from which to question authority. But at least it is now common to find ex-nuclear priests – indeed CND's leading figure is one. Yet the Catholic church officially still holds an ambivalent, divided, position – nuclear weapons but no use. Perhaps this latest work from an ex-father may help.

Politics of scapegoating

In the autumn of 1973 the petroleum exporting countries reached for their oil weapon. Suddenly the calm of the economic ministeries in the western capitals was rent by the noise of forecasts being torn up. Last week the seminar rooms of the "Science Po" in Paris echoed with the sound of political scientists sorting out the bureaucratic consequences of running developed societies in a decade of hard times from London, Washington and Ottawa.

It is very easy to be sceptical about the utility of global jamborees like the World Congress of the International Political Science Association. On one level they are the thinking person's equivalent of the Eurovision Song Contest – all grandiose setting and puny performance. Yet the deadening output of paper at the Fondation Nationale des Sciences Politiques does serve to remind insular people like me that Mrs Thatcher's attempt to bend Whitehall to her will and her strategy is not an isolated phenomenon.

The process seems to have gone furthest in the United States. According to Charles Levine of the Library of Congress Congressional Research Service speaking at the IPSA Organization of Government Panel: "In America we stand very close to a crossroads . . . We are about to pay a very high price. We simply will not have the quality people in the bureaucracy". Washington's career civil service is in an enfeebled condition. Since 1979 40 per cent of its senior executive service has left. The Reagan administration has extended political control further and further down the career grades.

By contrast, Pierre Trudeau sought solutions to Canada's problems in technocracy rather than the insertion of political partisanship into the Ottawa bureaucracy, particularly in his early premierships. But, according to Professor Peter Aucoin of Dalhousie University, the new Canadian PM, Mr Brian Mulroney who, Kinnock-like, has never held ministerial office before acquiring the leadership of his political party, has adopted a highly personal, anti-bureaucratic style of leadership. His engine-room is an enlarged Prime Minister's office. Mulroney has diminished the power of central departments, like the Privy Council Office (equivalent of our Cabinet Office) which were the mainstays of Trudeau's Ottawa.

How does Mrs Thatcher's style look when compared to her conservative counterparts across the Atlantic? Despite the similarities of direction and intent, she appears the very model of a cautious gradualist which may surprise those, not least in the universities, who have felt the sharp end of her handbag. Take the bureaucracy. Raynerism (which spawned Jarratt) has, by the standards of previous attempts to create a more managerially-minded Civil Service, had a substantial impact. It differs in two respects from the Reagan equivalent: Lord Rayner, who in a previous secondment from Marks and Spencer had been a permanent secretary himself, was determined to work with and through career officials particularly the younger ones with a yen for reform. Second, he kept his organization slim. His strategy was to build on quick investigations of blocks of work from whose results more ambitious targets could be identified.

Since 1979 250 Rayner scrutinies have been completed with savings achieved of £275 million a year and 20,000 staff, the running cost of central government has been brought under control and a clutch of initiatives launched to change the culture of the Civil Service. The Prime Minister's Efficiency Unit has a staff of seven and a budget of £400,000. President Reagan's Private Sector Survey on Cost Control has brought 2,000 executives to Washington, created 161 task forces and produced 47 volumes by way of a report. The Grace commission, as it is called, has become an overloaded bureaucracy in itself.

Moving from methods to people, Mr Gladstone's great creation of a politically neutral career Civil Service, Britain's first meritocracy, has proved far harder to sap and mine than its Washington counterpart. Mrs Thatcher has intervened more than any previous prime minister in top Whitehall appointments, she *has* brought in a number of politically appointed outsiders (one, Mr Peter Levene, was put into the MoD's Procurement Executive in clear defiance of the Gladstonian ground-rules) and she *has* beefed up her Policy Unit in Number 10. But in no respect are her activities comparable to those of President Reagan or even Mr Mulroney.

And her changes have not gone unnoticed or unmarked by warning signals from the guardians of probity and continuity. The latest maroon was fired this week in *Political Quarterly* by Sir Douglas Wass, joint head of the Home Civil Service until 1983. Sir Douglas wants a Royal Commission to sort out the question of top appointments, the loyalty of career civil servants when ministers bend the rules and the accountability of the system as a whole. Furthermore Mrs Thatcher may wish, as one Whitehall insider put it, that she were "a president within a monarchy" but the robustness of the British system has prevented her from overriding totally the conventions of collective Cabinet Government.

If nothing else, governing in hard, post-OPEC times has made the study of public administration interesting again even to the extent of enlivening an international congress on a muggy July week in Paris. Charles Levine, however, touched on a depressingly wider phenomenon of the past 12 years – a loss of faith in the skilled and the expert, a development in marked contrast to the prediction from scholars like Daniel Bell 25 years ago that knowledge would displace politics as the dominant motor of public policy. "Americans" said Levine, "grant authority to experts and professionals on a provisional basis".

The "know-nothings" are doing quite nicely, too, in Mrs Thatcher's Britain. Only in France, as Yvonne Fortin of the Centre National de la Recherche Scientifique, pointed out in a discussion period, has the senior Civil Service with its *grand corps* escaped from the politics of scapegoating. Societies which do down the value of expertise at moments of stress and disturbance when government becomes markedly more difficult are in the business of scoring own goals. It is bad news for public service professionals, the universities, polytechnics and research councils which train them and the countries themselves. OPEC has a lot to answer for.

Peter Hennessey

The author is a senior fellow at the Policy Studies Institute.

Why the medieval population explosion was no joke

At the heart of Umberto Eco's medieval novel, *The Name of the Rose*, is a discussion of laughter. Eco's jokes came in part from the writings of a late 13th century Franciscan called Salimbene, who elsewhere recounts the story of Florentine men wisecracking about the advent of a rabble-rousing, miracle-working preacher:

"Once, when the Florentines heard that Brother John of Vicenza would come to their city, they said, 'For God's sake let him not come hither, for we have heard how he raiseth the dead, and we already have so many that there is no room for us in the city'."

This was current in the early 13th century in a western Europe which had been experiencing population growth for several centuries (to reach a peak in the latter half of the 13th century), and in a city whose medieval walls, enclosing ever larger areas, are a crude index of its growth.

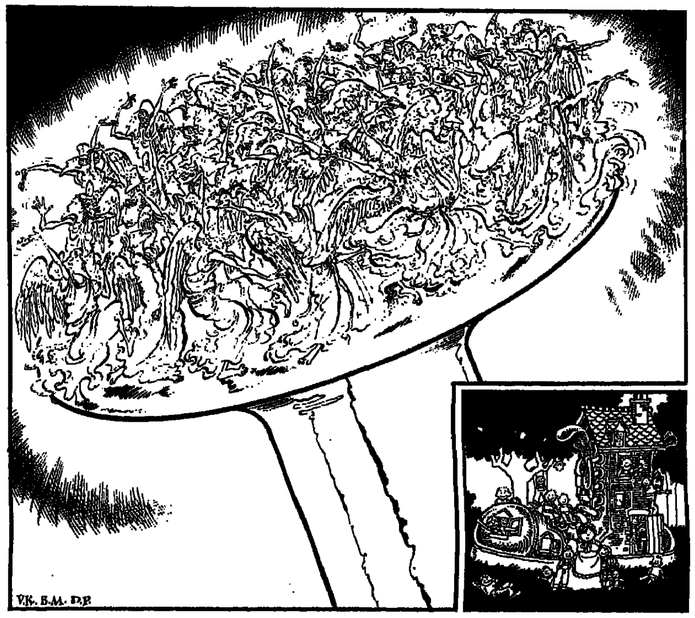
A crisis of overpopulation, too many people for the land, is the theme of the end of this period: north, in England, the Lincolnshire villages of Moulton and Weston had 77 households in 1086; by 1259/60, the number had risen to 389. In Taunton, the population doubles between 1209 and 1311, and land per person decreases from 3.3 acres in 1248 to 2.5 acres in 1311.

Move sideways from Florentine men in the street to a learned Florentine poet, Dante Alighieri. In the *Paradiso* the fictional Dante of the poem is made to engage in conversation with an early 12th century Florentine ancestor Cacciaguida. Their talk permits a sustained comparison of good old days – early 12th century – and bad present times – 1300. Population and "vital" facts loom largest. *Then* Florence was within her old wall. How many Florentines were living then? One fifth of those living now. And what of now? Households are empty of family: signs of birth control? The marriage age of girls has changed and is not what it should be.

Leave Dante and look at a different sort of Florentine, a hard-headed man of business, Giovanni Villani. Into his chronicle he entered a statistical description of the city, providing figures for children in education and professional groups, the sex-ratio at birth, and the total city population.

Such examples of very different Florentines thinking demographically illustrate and introduce two related suggestions: that the experience of population growth and overpopulation helped stimulate thought about population in the central middle ages; and that medieval thought about population should be an independent object of study.

More than angels on the pin ...



Unthinkable or inconceivable? Peter Biller looks at 13th century demography

While medieval demographers are hampered by the scarcity of quantifiable data, interesting work is still being produced. "Medieval demographic thought", by contrast, is not established as a subject, and much obstructs it, ranging from fundamental assumptions about the middle ages and the "medieval" nature of its thought, to practical questions about the ways medieval history is researched and written.

The most fundamental blocks are widely diffused assumptions about how medieval men thought or, allegedly, could not think. Demographic thought might seem peculiarly "modern" and so how could medieval ("pre-modern") men think in such terms?; the French historian Philippe Ariès has said that birth control was literally "unthinkable" (let us not say "inconceivable") to medieval men.

With a narrower focus on the medieval intelligentsia, there is a widespread assumption, most concisely formulated by Karl Mannheim, that medieval intellectuals were only concerned with abstract themes. An extraordinary study of the rich, precise and concrete discussion of contemporary social issues among a group of late 12th century Paris theologians, John Baldwin's *Masters, Princes and Merchants*, published in 1970, brilliantly exploded this; but how many, outside a few medievalists, have been influenced by Baldwin's book?

Beyond the tendency to deny to medieval thinkers the capacity for realistic thought on concrete social issues there lies a further problem. Thought about poverty serves as an example. Thirteenth century men did not write books entitled *The Social Problem of Poverty* or *New Statesman*-like leaders, but expressed their very interesting views on the subject in canon law commentaries. Consequently, the study of this area of medieval thought needs both the examination of arcane texts and someone prepared to cross the bridge between the disciplines of canon law and social history. Much medieval demographic thought is hidden away in arcane theological and philosophical commentaries, mostly unprinted.

Against the rich variety of the Florentine example the thinkers – unfortunately – are usually only those who wrote in Latin. They came, first, from monks devoted to contemplation of God and from the scholars of urban centres, the cathedral schools of the 12th and universities of the 13th centuries, men whose eyes were directed at least in part to the world. Added to their numbers in the 13th century were those sharpest of medieval observers, the mendicant friars, with their special concerns and experience – pastoral work and hence marriage, and far Eastern travel – and also some polymathic scientists.

These men handled texts with demographic elements, for example, the bible (expansion of population, longevity, censuses, etc) and classical geography (extent of habitable world, populousness of a country, fertility of a people, and so on), and these texts were reshaped in the 12th century and vastly added to then and in the next century with the translation into Latin of Greek and Arabic science and philosophy. Coinciding with this increasing availability of texts which incorporated demographic concepts or were likely to stimulate demographic thought were such widely divergent themes and pressures as population expansion, the church's takeover of marriage regulation and increasing knowledge and experience of populations beyond the borders of Latin Christendom.

To give some idea of the quality of medieval demographic thought and the range of texts in which it occurs four examples may suffice. The first is canon law. The famine years of 1194 and 1198 saw the emergence of the canon-legal principle that a starving man may take what he needs. A social problem becoming more acute, debate accelerated, and thence new canon law: can one apply this pattern to demographic thought?

Between 1227 and 1234 a new decretal specified among the conditions which impede the marriage contract by being against its substance the stipulation by one partner: "I contract with you if you will avoid [conceiving] offspring". One can only speculate, working backwards, on the debate behind this and on the social developments behind the debate.

Secondly, various themes arise from mental grappling with alien populations. Far eastern travel, the famous journey of Marco Polo and the less famous ones of mendicants made men aware of current rather than biblical censuses and the great size of non-Christian populations. The Christian population was actually shrinking: one early 14th-century friar pessimistically assesses it as only one twentieth of the world population.

Observation of alien marriage systems produces thought on the relation between these and population. An early 13th century French treatise on marriage systematically compares Christian monogamy and Islamic polygamy from the demographic point of view. The author does not assume (as many do) that polygamy leads to greater increase of population". Take any other country of the same geographical extent and agricultural fertility and you will find just as great population density (*numerositas*), unless it has been specially reduced by plague or warfare.

Thirdly, outstanding among earlier texts which put demographic questions and attracted commentaries is the 12th-century theological textbook, the four books on the *Sentences* of Peter Lombard. Countless university scholars commented on these; some of these commentaries survive in written form (1407 MSS were listed in 1947) and although many of these may be concerned only with abstract issues and others may be only derivative, some may take up the demographic questions. These have been sampled mainly by scholars only interested in the history of speculative thought. In book II a counter-factual question – basically "What would have happened if Adam and Eve had not sinned?" – is the basis of a variety of demographic questions: for example, would men have lived for ever? This could have allowed for the discussion of the effect of physical environment on length of life. The problem of the patriarchs' longevity could be introduced, and the contrast between it and later men's brevity of life led to the question "is life-expectancy decreasing?"

An early 14th-century commentator tosses off the comment that men in his time may hope to live to 70 or 80. Would there have been an equal number of each sex? Would anyone have been sterile? The demography of salvation could pose a problem: if an innumerable number of people are to be saved, how could such a small place as the terrestrial paradise hold them?

In Book IV questions about variations in divine laws about marriage are set within a theological history of population: marriage as a precept, polygamy allowed and virginity prohibited when there was a rarity of men; and marriage only an indulgence, polygamy prohibited and virginity a virtue after population expansion. These texts could allow hypothetical speculation about reactions to population crises: could one have a dispensation for plurality of wives if war or plague brought about a massive diminution in the Christian population? Or a dispensation to multiply Christian inhabitants in the Holy Land? Emphases in commentary may reflect the outlook of men living in a period of over-population – emphasis on the good of virginity, emphasis in one's phrasing on the *magna multiplicatio*, great multiplication of men, now being achieved, variations in emphasis on the marriage good of offspring.

Finally, outstanding among the new texts of the central middle ages are parts of the Latin Aristotle. His scientific works, the *History of Animals* and *Generation of Animals* discussed many "vital" factors such as ages of generation and variations of fertility and his tract *Length and Shortness of Life* discussed variations in life-expectancy (according to sex, locality, degree of work). Most significant among his moral works is the *Politics*, which discussed among other things the ideal population, the relation between size of population and particular constitutions, determining numbers of men in relation to property, encouraging and discouraging the birth-rate, taking account of the incidence of infant-mortality and infertility in some couples, replacement, regulating ages at marriage and the ideal ages for marriage, and using abortion to keep numbers down.

For all these themes, appropriate phrases in Latin were found by the medieval translators and thus through the medium of the hundreds of manuscripts which came to the eyes of learned men there came the vocabulary of these demographic concepts, and thereby the concepts themselves.

The *Politics* is the example here. Translated around 1260, it disseminated phrases for "encourage the birth-rate" (*provocat quod plures faciant pueros*), "same/stable population" (*eadem multitudo*), "limited reproduction" (*determinatam multitudinem*, and by the 1330s them is the concise phrase "over-population" (*multitudo excessiva*).

Beyond vocabulary, in early 14th-century comment there may be emphasis on a later humanist theme, too many children leading to poverty and therefore inability in the citizen to engage in virtuous and great works; or in the independent treatise of a writer originating in a class-conscious and overcrowded Italian city, a socially tart comment on fertility: the generative power is not in itself an unqualified good, for it may even be found to a greater extent in a lower-class man. Broader demographic knowledge and interest is shown in one commentary later in the century, where classical and early medieval references to population movements and changes are collected in some of the glosses, implying a rather sophisticated development in demographic thought: the notion of the *history* of population.

Three years ago I published an article in *Past and Present* in which I presented some references to the practice of birth control in the 13th and 14th centuries which may provide some final lessons for study in this area: preserving one's wife's beauty and one's opportunities to make love to her; avoiding having more children than one can feed. There is also thought at the "macro" level: in a pastoral manual sinners against nature (probably including practitioners of *coitus interruptus*) are made to say to God: "You made man and woman in order to multiply, we however are doing our best to make them diminish." Methods are specified. There is a clear vocabulary – "in order not to conceive", "to avoid offspring", "limit the numbers of children" – and in one case a possible social precision, noting the avoidance of sex in order to avoid conceiving children that cannot be fed as a vice ascribed to peasants.

It will be a formidable task to track down the various expressions of medieval thought on the theme. Written materials expand vastly in the 13th century and no one person can hope to survey all of it. Equally, one needs to confront the fact that the area one is investigating is qualified by the fact that its expression is to some degree scattered and miscellaneous. To some degree: the ease with which an early 14th century scholar brought together some medicine and some canon law on a theme such as age at marriage should allay some worries about making connections that a medieval thinker would not have made or about imposing anachronistically a modern category.

Demographic thought, *pace* Ariès, was "thinkable" in the middle ages and the field is far more varied and rich than had been believed, rich enough to merit independent inquiry.

The author teaches history at the University of York.

Next week: Andrew Hinde on the birth of the small family.

Computer aids for the discerning palette

American higher education is caught up in a computer revolution. A survey revealed that about 40 per cent of today's college students use a campus computer facility to analyse data or to learn programming. Even more significant, about half said they had used a computer in school before they came to college.

About a dozen US colleges and universities are now requiring all incoming students to get a personal computer, along with textbooks. Drew University in New Jersey is one example. Applications at Drew increased almost 50 per cent after the requirement was announced, and the Scholastic Aptitude Test scores of incoming students rose as well. Last fall, when the director of the computer programme asked a group of freshmen if they were using their computers, it was, he said, "like asking them if they were using their chairs."

On most campuses these days the computer is a word processor, used by faculty and students for writing and revising. It is also used by administrators for admissions, personnel records and budgeting, for example. Computers are important to librarians, used for information storage and retrieval. And, increasingly they are being used by faculty to enrich instruction.

Recently, the Carnegie Foundation researchers visited campuses from coast to coast. At one eastern university we found a fine arts classroom free of oil and turpentine smells. There were no easel stands under muted lighting no dropcloths beneath the students' feet. Instead, the aspiring artists sat in a semicircle and stared at computer screens. One touched a metal stylus to a pressure-sensitive electronic pad; as she did so, the colours displayed in the lower third of the screen mixed to her specifications. The student could choose from 256 colours in this computerized palette created by her professor and blend them with the others in hundreds of subtle combinations. When the shade satisfied her, she used the stylus to transfer it to the abstract drawing waiting further up on her screen.

Next to her, another student worked on a black and white self-portrait. Still another experimented with the stylus, putting hundreds of tiny dabs and dots of colour together to create a picture. The professor himself used the stylus with ease, moving between the menu of line, shape, and colour and his own abstract drawing. He considered the computer just another artist's tool, a technological paintbrush that expands creative possibilities.

At Drew University, rhetoric professor Jacqueline Berke says that, because of word processors, "our understanding of the way people write – the stages, the process – has changed. The phase of writing that is actually most important is revision. Yet how much time does the poor student give to revision?" She recalls a line from a journal: "The computer makes revision a playground instead of a punishment."

Psychology students at Carnegie-Mellon use an IBM personal computer to generate experimental models. The personal computer allows them to test the data with a variety of statistical tools. An actual experiment with just one set of data would take most of a somester to finish. With the computer, the task is completed in several days.

Stanford historian, Carolyn Lougee, has created a computer program about Louis XIV. In this academic game, each class member takes on the role of a young Frenchman in 1638. Each student collects rents and grain from the tenant farmers on his land and tries to buy an advantageous position at court. The goal is to introduce students to the functioning of a complex 17th-century society.

Beyond these creative experiences there is now talk of something called the "wired university". Carnegie-Mellon, MIT, and Brown are bringing "scholars' workstations" to the campus. Some call this new machine a "3-M". It has one million bytes of memory, handles one million instructions per second, and has a display screen that measures one million pixels – or, one million of the miniscule dots that make up a television picture.

By 1990, Carnegie-Mellon expects to have 7,000 workstations on campus so that personal computers will outnumber the present collection of telephones. Brown University's vision of a "wired university" sounds most ambitious of all: 10,000 workstations will be linked in a campus system that is expected to cost between $50 million and $70 million.

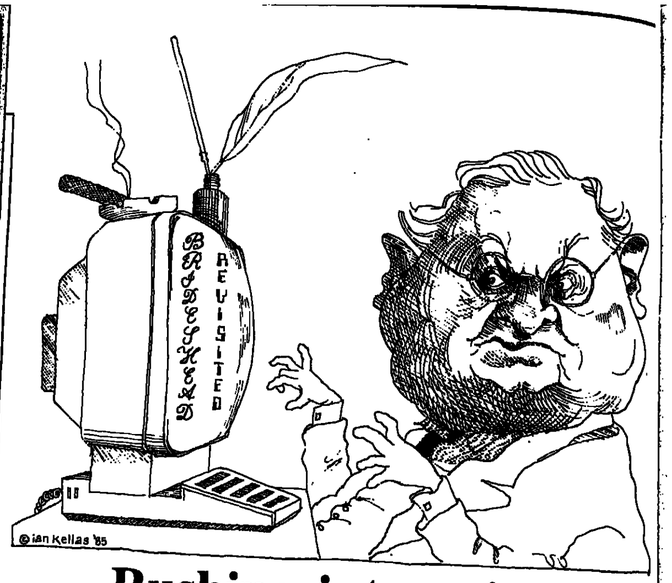
But there is another side to all of this. While these futuristic plans were getting off the ground, another computer system was being installed at a small southern college visited by Carnegie researchers. At this institution – far removed from Brown and MIT – the director of computer services is a professor whose course load has included anatomy, zoology, and biology. The professor's new job with computers keeps him at work at least 50 hours each week. And when he decided that the college could use another computer he brought in his own machine from home.

The professor put together the college's two-computer "system". Seven terminals are available for student use and eight are scattered throughout administrative offices. The faculty member did all the computer programming, and he teaches the students to use them. All together the system cost $60,000 – two-thirds of which came from the federal government.

Those are the extremes: the 21st century wired campus, and the campus with a cut-rate terminal or two. The harsh truth is that while technology can be of service to higher education – administratively, pedagogically and for research – a college cannot do it on the cheap. Like the library a basic service must be put in place. And, like the library, the service must be nourished at perhaps an even higher cost.

Thus, behind the computer revolution there is the disturbing story of the haves and have-nots in education. And once again, two groups of students lag behind. The loss begins before students come to college: Poor families frequently do not have home computers and often girls in school are not encouraged to use computers. And poor school districts are unable to keep pace with fast changing technology. Nor are they able to respond adequately to teacher training needs.

Leslie Wolfe, director of the Project on Equal Education Rights observes that "everyone has to have equal access to computers, just as they do to pens, pencils, blackboards, and teachers." That's true, of course. But the wired university will be staggeringly more costly than pens and pencils. And as the new electronic revolution reaches into all levels of education, the widening gap between the winners and the losers, rich and poor, may, in fact, become a yawning chasm. Technology, which has such enormous power to unite, should not be permitted to become a divisive force.



Rushing into print

Adam Hodgkin and Andrew Rosenheim on the impact of wordprocessors in book publishing

In 1885 there were few mechanical aids for writers, and even the recently invented typewriter was slow to take hold. Henry James used one at the turn of the century, but in the Second World War Evelyn Waugh was sending the manuscript of *Brideshead Revisited* by post to a hired typist. Since there are still authors who will only use pencil and paper, publicity given to the growing use of wordprocessors by writers may seem exaggerated and premature. But unlike typewriters, wordprocessors are the application of a broader technology – computing – that was originally not involved with the writing of text. This larger technology is now entrenched in our society; its power and economy grow rapidly in ways which are certain to affect writers, publishers and readers.

But what are the advantages of wordprocessing to the writer? Chiefly it is an enormous asset in editing, revising and organizing documents – the general term used in wordprocessing to refer indiscriminately to letters, memoranda, essays, chapters, books or any piece of text. Insertions and deletions of any length can be accomplished easily on the screen by pressing a button. More impressive still are the powers to search, and move rapidly, within a document.

The search capability works quite simply: after hitting a key the user types in a word, a character, or a string of characters and words, and directs the machine to find a matching example. It can find just one such instance, or it can do so throughout the document. More important, it can automatically replace recurring misspellings or grammatical infelicities. The writer who returns to his unfinished 1970 draft of a book on Rhodesia can update his text mechanically by replacing that word with Zimbabwe throughout after issuing only one command.

Gone are the labours of retyping entire documents, the chore of reproofing, the inconvenience of amassing draft after draft of typescript; gone with them is the reluctance to re-edit. The "block moves" of all wordprocessing programs are probably even more surprising to the writer used to pen or typewriter. By hitting a key or using a "mouse" pointing device, the writer can specify sentences, paragraphs, even whole pages to be moved around in his text.

Many wordprocessing programs allow documents to be merged so that a scholar can draw up footnotes as a separate document, then incorporate them wherever he likes in the main body of his text. These features are especially useful to the writer with many ideas in his head but little organization. He can now set down these ideas in whatever order he likes, then rapidly assemble and reassemble them without laborious retyping.

The impact on archivists and literary historians will be considerable: the manuscript collector or bibliographical scholar of the 21st century will search in vain for the second draft of the next decade's *Ulysses*, for it will have disappeared when its author re-edited the work on his screen. It seems unlikely that the University of Texas will build up an archive of authors' floppy disks.

These editing features are now the core of any wordprocessing program and relatively old hat. More recent developments offer increasingly flexible methods of formating and presenting text.

Proportional printing is now possible in most wordprocessing programs, and screens allow both justified and unjustified text and different sizes of font. Particularly valuable to the author or scholar with an interest in several languages are wordprocessing packages displaying foreign alphabets which will also allow the user to design his own characters.

These advances are the realization of a once distant vision known in the computer industry as WYSIWYG – What You See (ie on the screen) Is What You Get (ie on the printout). Until recently, most printers could show bold lettering, or underlining, or even raised numbers indicating footnotes, but very little else. The writer had to choose between slow, single-font letter-quality printers, high-speed dot-matrix printers with poor character resolution, or plotters, which can show graphics, figures, even colour but are hopeless at printing straightforward text.

The appearance of low-priced high-speed laser printers suggests that in the next few years printers will be available that are capable of printing lead-line type, small type for footnotes, charts for bar graphs, and italic, Greek or Cyrillic characters. These advances mean that writers' "typescripts" – whether stored electronically on disk or printed out on paper – will be, if not camera-ready, then much closer to the look of the printed book or article.

The impact of wordprocessing on publishing is likely to be momentous. Today, the text of nearly every book sold has existed in machine-readable form at some stage in its composition. A recent survey of writers in the USA revealed that 60 per cent expected to deliver wordprocessed manuscripts to publishers and almost all present-day commercial typesetting is partly computer-based.

Often the text of a book exists in two computerized forms, since it may first have been typed on a wordprocessor then retyped on a computerized typesetter. A principal reason for this is the lack of compatibility between hundreds of different computers, wordprocessors, and microcomputers.

The requirements of different printers can be baffling – a London typesetter may use one code to indicate 8-point Bodoni, his Birmingham counterpart might use the same code for 10-point Baskerville. A link can be established between systems using modems and a telephone line. Incompatibility of design between hardware can also be tackled using translating machines sometimes called "black boxes". But communication is often annoyingly difficult – and expensive.

This lack of standardization arose from computer manufacturers' determination to make their designs the industry standard. The domination of IBM and the realization that design "Balkanization" is self-defeating have forced manufacturers to emphasise compatibility. But the speed at which the technology is changing suggests the problem will persist. And a hasty move towards standardization might stall the growth and innovation that remain the technology's greatest strength.

Some standards are needed so that writers, publishers and readers can benefit from the increased flow of information. Some standards already exist, including ASCII (American Standard Code for Information Interchange), which can translate into binary code the characters and symbols most commonly found on a typewriter keyboard.

What is needed is a standard that will bridge the gap between printer and writer and allow the easy translation of electronic text into published form. Additional coding systems would allow authors to prepare text that need not be retyped and can easily be mass-produced in book or electronic form.

ASPIC, a convention backed by several British printers, and the new Oxford rules for the preparation of text on microcomputers, are efforts in this direction, but these conventions will not be able to cope with *every* requirement. They are also at odds with the WYSIWYG philosophy as authors are able to create increasingly book-like texts.

Until standards are adopted, both new technology and old will suffer. The imminence of new methods for printers and compositors makes attachment to the quality standards of well-tried technologies more difficult to sustain.

For the writer, too, the new technology has potential drawbacks. One can now effortlessly generate several hundred drafts of an article using a microcomputer, but the prospect remains that not one of them may be any good.

Adam Hodgkin is research and development manager of the Oxford University Press, Andrew Rosenheim is European editor of Wang Electronic Publishing.

. . . and the pursuit of happiness

SKEGNESS, LINCOLNSHIRE, 1957: "Yet again, I find myself spelling it out to every boy in this room that it's Work! Work! Work! Work! Work and I don't care if it *Kills* you . . . in fact in certain cases it might be a blessing. Wipe that silly smile off your face, Grylls, or I'll wipe it off for you with this!"

The blackboard rubber misses me by an inch. "This is not Butlin's laddie!"

NEW ENGLAND CAMPUS, SEPTEMBER 1984: "I guess we have a policy over here of issuing home phone numbers of all faculty to students. If they have a problem, they know who to call. And you can call them if you have a problem with their work. You have each student's number on campus right here."

She jabs a finger at the phone book I am holding.

"They all have their very own phone and they can call one another round the clock if they want. It makes the kids feel happier if they can call someone . . . excuse me."

The phone rings yet again. She cradles it in her neck, talks down it rapidly and continues typing.

NEW ENGLAND KITCHEN, 6 PM: "What did you do at school today, Sarah?"

"It was 'Friendship Day' Daddy. We had to write down the name of our best friend in class. Katie won."

ISLINGTON, DECEMBER 1984: "It doesn't excuse her for being very silly, but she is rather tired, Vaughan. They're pushing them hard now, you see. Last night she didn't finish her homework till 9.30. How is America?"

I clutch my seven-year-old daughter's hand as we watch her friend having tantrums. On the sofa lies strewn a brand-new school uniform looking for all the world like a military kit for a very small soldier. Eventually the wailing subsides into sobs.

"America? There's a lot to be said for it. They treat the young with great respect."

DEPARTMENTAL OFFICE, NEW ENGLAND, APRIL 1985: "At the end of the semester, you give out these evaluation forms. The students fill them in anonymously and they are then fed into the computer. They use the data in making reappointment and tenure decisions."

I scan yet another multiple-choice form. "Were you *interested* during class? 1/Always. 2/Most of the time. 3/Some of the time. 4/Never. Tick one box only."

"But don't they assess the student's work? How many have got firsts and seconds, as we call them in England?"

"No, *you* do." She smiles.

"I know, but a moderation? A second opinion?"

"No, you grade the work on your own."

"And the students grade me?"

"You've got it!"

All these questions. "Was your professor accessible outside class? 1/Always. 2/Most of the time. 3/Some of the time . . . "

"Hey, I gotta run!" She flashes me a smile and is gone.

I stand forlornly in the corridor. What if they don't like me? What if my students aren't *happy*?

SCHOOL END OF TERM CONCERT, JUNE 1985: "And now, a little girl all the way from England is going to sing us a special song – an old soldier's song of long, long ago . . . "

Sarah is picked up bodily by the music teacher and placed on a table. A hush falls over the beaming audience . . .

"*Pack up your troubles in your old kit bag and smile, smile, smile. . . "*

TWO DAYS LATER, COLLEGE OF ART GALLERY: "But I had to be a bit of a slavedriver sometimes. Some of them almost didn't seem to know how to hold a pencil."

Yes, well, a lot of them haven't done any art at high school. If they do art at all, it's in recess. Some of this stuff looks pretty good. Hey, those are some neat drawings over there!"

"The girl who did that one said she was bored after only three hours. But I kept her at it. I doubt whether I'll get a good evaluation from her. Anyway she's got a good grade from me!"

"Huh. Well, I guess you've got to do things for yourself for it to be meaningful. I don't believe anybody has to be unhappy to make great work, Vaughan."

"Mmm . . . maybe not," I say nothing for the moment. "Well, I'm certainly not trying to make anyone *unhappy*. I find myself giving a lot of praise out. In a curious sort of way it seems to be expected."

We stroll out of the gallery into the dazzling daylight.

"I guess we all want our place in the sun", he quips putting on his shades and flashing a smile at a student jogging past. Then he turns and transfixes me with a sudden change to his expression and voice that suggests new solemnity of purpose – the sort of change that only Americans seem able to manage successfully in double-quick time.

"Have you been happy teaching here this year, Vaughan?"

"Well, there was a lot to get used to. But I have to say yes. From this perspective, teaching where I come from seems a little like working for the British National Health Service. The students aren't expected to enjoy a visit to the doctor or dentist. They go because it is good for them. And it's free."

He changes his expression again, and guffaws.

"Say, I told my wife those stories about your schooldays! That one about caning day on Fridays in the school hall after prayers. That wasn't Eton was it?"

"No, Skegness Secondary Modern, in 1957."

"Sounds like 1857. Unbelievable. Well. I gotta go. I hear you're all leaving the colonies soon after graduation. If I don't see you there, take care . . . "

GRADUATION DAY, JUNE 1985: "We now come to our annual award for the best teacher in the college, voted by the Class of '81, please come forward . . . "

He mounts the platform, bows to the president, receives his award and turns to the Class of '81 who clap and cheer enthusiastically.

"Well, I guess I just don't know what to say except "Thank you!"

Neither do I, sitting behind him on the platform, looking at the smiling upturned faces. Strange how infectious the atmosphere is. Perhaps, I half hope, popularity is catching.

KENNEDY AIRPORT, JULY 4 1985: The sun slides into New Jersey catching Manhattan's spires of supply and demand as our jumbo lumbers to Cat. 111 Hold. Admiring the nonchalance of my fellow passengers, I suddenly hear a crash just behind. A stiffly censorious British Airways steward storms down the aisle in the direction of the noise.

"Who and what was *that*?" he hisses in stage fury. A hapless, open-faced college kid sits sprawled in his seat with his overhead locker fallen open and a camera tripod in the aisle.

"Gee, I sure am sorry, sir."

"Sorry isn't good enough. That could have hurt somebody – probably *you*." He snatches up the tripod and stalks back down the aisle.

"You can have this back at Heathrow."

Hours later, as the plane drones over the Atlantic, I come across an item in a London paper that I feel might interest my American colleagues. In a Parliamentary debate on corporal punishment the Earl of Onslow, 48, declared: "Most of the time I am longing to thrash my children." Would they take it for 1857 again?

I glance across the aisle at the college kid. His features are relaxed in guileless sleep.

Vaughan Grylls

The author is a practising artist who has just spent a year teaching in the US. A major exhibition of his work opens at the Elvelijen Museum of Art, University of Wisconsin, at the end of September.

Anti-cancer antibodies

Cancer treatment is being revolutionized by monoclonal antibodies, reports Robert Baldwin

It is now possible to produce monoclonal antibodies that will react with cancer cells or cancer cell products in ways which will revolutionize cancer detection and lead to important advances in treatment. These biological substances are one of the innovative products of molecular biology and technology making it possible to mimic the natural production of antibodies.

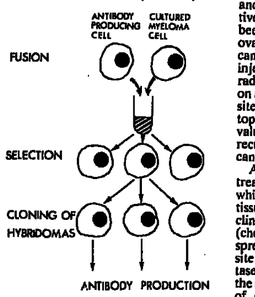
The body's immune apparatus recognizes and eliminates substances (antigens) associated with foreign cells such as bacteria and viruses. In the normal course of events "antigen stimulation" sets in train the generation of multiple populations of specialized cells – called B lymphocytes – some of which will be programmed eventually to produce antibody.

Developments in "hybridoma technology" make it possible to immortalize a single B lymphocyte by fusing it with a myeloma cell to form a hybridoma with the capability for continuous growth. Each sensitized B lymphocyte possesses the genetic information and machinery to produce antibody, but lacks the capability for indefinite survival. The other partner in the hybridoma is a myeloma cell which retains the capacity to synthesize molecules with the basic structure of antibodies and this is "activated" following B lymphocyte fusion. In practice a hybridoma constructed using as one partner a B lymphocyte from a donor immunized with cancer cells expressing a characteristic marker will secrete an antibody reacting with this marker. Also, since the hybridoma will have been selected by growing cultures from a single hybridoma cell, the antibody will be monoclonal and will thus recognize a *single* marker.

Another important feature of hybridoma technology is the capability to produce large amounts of monoclonal antibody which makes their use as drug carriers more realistic. For example, a monoclonal antibody developed against bone cancer at the Cancer Research Campaign Laboratories at Nottingham is already produced on a continuous basis to yield tens of grams. Commercial operations are being established where kilogram quantities can be produced quite readily.

The next step in developing monoclonal antibodies for diagnosis and therapy of cancer is to produce products which recognize cancer cells. Originally it was thought possible to produce "monoclonals" which would recognize cancer but not normal tissue cells. To date this goal has not been achieved despite intensive efforts around the world. Instead monoclonals have been generated which react strongly with cancer cells, but only weakly with normal tissues. These include antibodies which react with virtually all of the common forms of cancer such as colon, breast, lung and ovarian cancers as well as less common types, eg skin cancer (malignant melanoma) and bone cancer.

Cancer monoclonals have a multitude of uses in basic cancer research and for clinical management of cancer patients. "Immunological" tests are being introduced in which the reaction of antibodies with cancer cells or products is aiding in the diagnosis of disease. Blood serum tests designed to detect products released into the circulation from cancer cells are aiding the early detection of cancer and are also used to monitor patients post-



Production of monoclonal antibodies

operatively for recurrence of disease. This is exemplified by the assay of a cancer marker CEA in colon cancer and another marker CA125 is being developed to screen ovarian cancer patients. Monoclonal antibodies are also finding increasing use for the detection of cancer cells in tissue sections and "immunohistology" is becoming a regular tool of the pathologist.

Another major approach under investigation is to target monoclonal antibodies to cancer deposits following administration to patients. This has two objectives, first if the antibody is labelled with a radioisotope which emits gamma radiation "antibody imaging" of patients will provide a new method for cancer localization. Second, if antibody imaging is successful it should be possible to link anti-cancer agents to antibody and use these "conjugates" for treatment.

Monoclonal antibody "imaging" of cancer patients has now been successfully accomplished and this research has reached the stage where the technique "immunoscintigraphy" is being evaluated for cancer detection in comparison with standard procedures. For example, monoclonal antibodies trace labelled with radioactive iodine (131-I) and more recently with a more effective radioisotope indium (111-In) have been used to detect colon, breast and ovarian cancer, melanoma and bone cancer. In this procedure, patients injected with small amounts of radiolabelled antibody are "imaged" on a gamma camera which records the sites of localization of the radioisotope. These trials have indicated the value of the technique for detecting recurrent disease in colon and ovarian cancer patients.

A fundamental objective in cancer treatment is to destroy cancer cells while minimizing damage to normal tissues. This is a major problem facing clinicians in planning drug treatment (chemotherapy) of a cancer which has spread in the patient from its primary site to form distant deposits (metastases). It is these metastases which are the major cause of death in many types of cancer. For example, in breast cancer it is clear that whatever method of primary treatment is used, cancer spread remains a major problem. Unfortunately many of the drugs used for cancer treatment damage normal cells as well so that it is not possible to administer curative doses to cancer patients without producing a widespread toxic manifestation.

It is against this background that methods are being sought for targeting agents to cancer deposits by linking them to monoclonal antibodies. This approach can hardly be viewed as new since Paul Ehrlich, at the turn of the century, proposed that molecules with an affinity for certain tissues might serve as carriers for drugs. The major innovation has been the design of monoclonal antibodies and the biotechnological advances which make it possible to produce them in large enough amounts for drug coupling.

One approach under investigation is to link "conventional" anti-cancer drugs to monoclonal antibodies. Here the effectiveness and side effects of the drug are well known. The aim, therefore, is to improve responses either by making the antibody-linked drug more effective or by reducing "side effects".

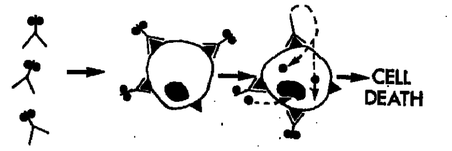
Monoclonal antibodies have been linked to a number of drugs such as methotrexate and daunomycin using procedures which ensure that the drug and antibody properties are not destroyed. This is not a simple task and it has to be recognized that the design of drug-antibody conjugates is in its infancy. For example a more recent approach is to first link drugs to a carrier molecule and then couple the drug-carrier complex to antibody. In this way the amount of drug which can be targeted by antibody is greatly increased.

Theoretically, if a monoclonal antibody localizes efficiently in cancer deposits it should be possible to link highly toxic agents for therapy. This thinking has led to the preparation of "immunotoxins" where very potent plant or animal toxins are linked to antibody. For example, a toxin called ricin, obtained from castor bean, is highly toxic to human cells, only one or two molecules being needed to cause cell death. In its natural form this toxin consists of two chains, a B chain which serves to anchor the toxin to a cell and an A chain which is the actual toxic component.

Taking advantage of these properties, ricin has been split into A and B chains and the A chain linked to monoclonal antibody so that now the A chain toxin should be effective only against cells binding the antibody component. As with drug linking there are many technical problems involved in the production of these immunotoxins, but conjugates have been designed which kill cancer cells. Unlike the case with conventional anti-cancer drugs, the toxic effects of immunotoxins for non-cancer tissues are unknown and until recently this has been considered a major stumbling block.

A third approach is to use monoclonal antibodies to target radioactive substances rather than drugs for "localized radiotherapy". As already indicated, many of the antibodies being developed for clinical trials have been "trace labelled" with radioisotopes for detecting their localization in cancers by imaging patients. It is not difficult to see how this approach can be advanced by incorporating larger amounts of radioisotopes so as to deliver doses of radiation which kills cancer cells. This will be effective both against the cancer cell binding the radioisotope-labelled antibody and also other cancer cells within a radius of up to 50 cells or more.

There can be little doubt that monoclonal antibodies are having a major impact in designing new approaches for cancer detection. It would be imprudent, however, not to recognize that there are still many problems to be resolved. Treatment of patients will next be evaluated carefully, documenting possible side effects, and at the same time a "second generation" of monoclonal antibodies needs to be produced since many believe a cocktail of antibodies linked to one or more anti-cancer agents will provide a more effective therapy.



Targeting of anti-cancer agents linked to monoclonal antibodies

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The author is director of the Cancer Research Campaign Laboratories, University of Nottingham.

BOOKS

Corridors of power

The Changing Civil Service
by Geoffrey K. Fry
Allen & Unwin, £15.00 and £5.95
ISBN 0 04 350063 3 and 350064 1

"The Changing Civil Service is not a textbook. It is an interpretive essay of assessment". Thus Geoffrey Fry begins his short, stimulating and argumentative book.

His opening qualification is an important one. This is not an appropriate text for an undergraduate. The reader needs to know a good deal about the civil service beforehand. The book does not contain listings of government departments or civil service grades – these are discussed in some detail on the assumption that the reader will already be familiar with the basic factual background. Freed from "textbook duties" the author is able to proceed directly to discuss the major issues of the last quarter of a century. These include the relations between civil servants and the civil service, the changing pattern of central control of the service, pay, trade unionism and "efficiency".

As befits an "essay of assessment", Fry is strongly judgemental. The main reason why, when they come to office, political parties may find themselves heavily dependent upon the higher civil service is that they are unwilling or unable to prepare properly for office. The occupational disease of British diplomats is that they seek "good relations" with other countries at almost any price. The Fulton Committee should not have accepted the Treasury's proposals for restructuring the higher civil service as these "perpetuated the administrative class in disguise". It is a myth that the method of higher entry to the home civil service is prejudicial in favour of Oxbridge. The Civil Service Department was a mistake. The 1980–81 Scott Report on the value of pensions was a "fiasco". Few (apparently) would challenge the principle of merit pay. The idea that civil servants may use their working knowledge to criticize the effects of public expenditure cuts is unconstitutional and illegitimate.

These and other opinions are frequently delivered with that species of zest usually associated with old-fashioned schoolteachers. Yet the book should not be dismissed as merely authoritarian or controversial; its author is clearly also authoritative and of deeply serious purpose. He recognizes the pervasive importance of the civil service in the process of governance and he identifies many significant changes in the structure, disposition and "culture" of the civil service in the last quarter century. Indeed, one of the books' principal merits is that it brings together a wide range of issues, information and argument which have hitherto been dispersed across a large number of specialist texts and journals. *The Changing Civil Service* deserves to be taken seriously on its own stated terms as an "interpretive essay".

As in some of his previous works, Fry makes the reviewer's task a hard one. There is no discernible general thesis; no explicit discussion of judgemental criteria and no handy summary of conclusions. The book dives quickly into close factual narrative and interpretation and it scarcely emerges from this until the final page. In many ways it is the mirror image of some of those portentous neo-Marxist tracts on "the state". There, the terminology is fortuous, here it is plain. There, there is much discussion of the macro theoretical context, here there is virtually none. There, the details of the historical record seem to play a relatively minor role, here the author revels in his mastery of these same details and nuances. And, one is tempted to add, there the main enemies are right-wing reactionaries whereas here the left, though not treated as anything so crude as "the enemy", is usually pictured as naive, self-interested or both. Fry is clearly a staunch advocate of "realism" and he has little time for the pleading of civil service union leaders, Labour ex-ministers or enthusiasts for institutional tinkering. One can hazard a guess at how strictly he might have dealt with Clive Ponting's claim that civil servants have a broad public duty to keep Parliament properly informed.

Perhaps the most interesting parts of the book are those where the author points to evidence of a trend toward the decay of the unitary conception of the civil service. In this context he mentions both the present government's breaking down of departments into their constituent parts for the purposes of cost control and the possibility of introducing regional pay schemes. One would like to have seen these interesting speculations drawn together and carried a little further.

In sum, the book lives up to its blurb as "an incisive and controversial analysis". Its chief problem is that, in the absence of a clearly articulated set of theoretical principles or judgemental criteria, its incisiveness tends to the idiosyncratic rather than the systematic.

Christopher Pollitt

Dr Pollitt is senior lecturer in government at the Open University.

When in Tokyo

Strategy and Structure of Japanese Enterprises
by Toyohiro Kono
Macmillan, £25.00 and £8.95
ISBN 0 333 33428 0 and 38273 0

Japanese Industrial Knowledge: can it help British industry?
by Malcolm Trevor
Gower, £18.50
ISBN 0 566 00822 X

The phenomenal growth of the Japanese economy in the last twenty years and the growing domination of world markets by Japanese corporations have increasingly focused attention on the mechanics of the Japanese management system. How have Japanese firms managed to achieve their startling success and what can their competitors in the West learn from this?

Both these books make useful contributions to our understanding of these issues. As his title suggests, Trevor is chiefly concerned with the potential contribution of Japanese industrial knowledge to the regeneration of British industry, whereas Kono provides a comprehensive survey of the strategies and structures of the largest and most successful Japanese manufacturing companies. While much of Kono's analysis deals with corporate behaviour in Japan, he also considers the question of the transferability of Japanese practices; most particularly by an examination of Japanese operations abroad.

A major strength of Kono's approach is the use of a wide-ranging set of empirical materials derived from a survey of over one hundred large Japanese manufacturing companies, five mail questionnaire surveys, interviews with managers, corporate visits and extensive documentary sources. From these he presents detailed accounts of strategic behaviour in such areas as product-mix and diversification, vertical integration, multinational management, competition strategy, new-product development and long-range planning.

Although some of the analyses are at a level of technicality which will appeal most strongly to scholars in strategic management field, Kono's more general descriptive accounts are sufficiently accessible to enable practising managers to gain a wealth of valuable insights into the workings of the Japanese corporation. The many brief case studies of major firms such as Toyota, Hitachi, Matsushita, Casio, Seiko and Canon, among others, are particularly helpful here. In addition, each chapter concludes with a review of the problematic aspects of each set of policies and practices, often incorporating both the perspectives of the Japanese and of outsiders. This helps to bring a refreshing degree of querulousness to what can otherwise easily become an uncritical homage to Almighty.

In Kono's view, the cultural uniqueness of Japanese management has been overemphasized. Yet the broader cultural underpinnings of many of the management practices he describes are frequently apparent. Moreover, the Japanese themselves have had to respond to different cultural environments by selectively applying their home-country approach when operating abroad. This suggests that a similarly eclectic outlook needs to be adopted by those who wish to learn from the Japanese and apply the lessons in their own contexts.

Trevor tackles the question of whether the Japanese example can help British industry by means of 11 brief case studies of various forms of partnership between British and Japanese firms. Noting that such ventures have been officially encouraged by both the British and Japanese governments, he aims to explore their effects and to identify possible correlates of their success or lack of it. He also examines two firms which had responded to the pressure of Japanese competition by means of a deliberate investment in the acquisition of Japanese knowledge, but without entering into a marriage with the Japanese.

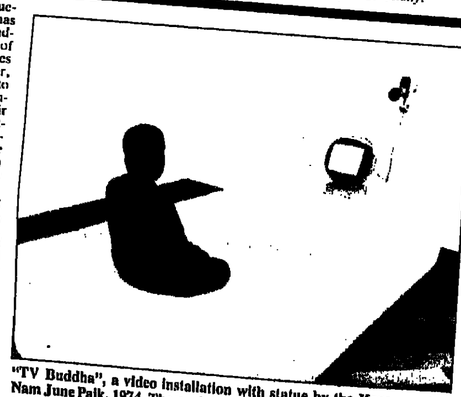
Trevor concludes that experience of joint ventures and collaborative agreements has so far been mixed, with issues such as the adequacy of the business rationale for cooperation, communications, and differences in managerial philosophy and cultural outlook looming large in influencing the quality of the relationship. Not surprisingly, then, the answer he gives to his guiding question is equivocal. Joint venture activity will probably increase, but the benefits of this particular form of cooperation are uncertain. There is the possibility, for example, that such partnerships serve more to exploit weaknesses than they do to develop strengths. In any case, they seem unlikley to spread quickly to major sections of British industry.

There is however, an alternative. Trevor suggests that the two firms which responded "competitively" to the Japanese, by learning from them without joining with them, demonstrate that Japanese industrial knowledge can be acquired and used positively. More generally, an approach to Japanese knowledge which combines a careful study of Japanese practices with an appropriate translation to allow for cultural differences seems necessary, and would itself mirror the past experience of the Japanese. "We must work out and implement solutions in our own idiom which are acceptable in our organizations. In short we must work out 'our solutions to our problems'".

That, after all, has been the Japanese way.

Alan B. Thomas

Dr Thomas is lecturer in sociology and organizational behaviour at Manchester Business School, University of Manchester.



"TV Buddha", a video installation with statue by the Korean artist Nam June Paik, 1974. The work was recently shown at an exhibition of contemporary art at the Hirshhorn Museum and Sculpture Garden in Washington. It is here reprduced from the book accompanying the exhibition, *Content: a contemporary focus 1974–1984* by Howard N. Fox, Miranda McClintic and Phyllis Rosenzweig (Smithsonian Institution Press, £33.75 and £22.50).

Militant tendencies

The Militant Worker: class and radicalism in France and America
by Scott Lash
Heinemann Educational, £17.50 and £7.50
ISBN 0 435 82516 X and 82517 8

Trade Unions: selected readings, second edition
edited by W. E. J. McCarthy
Penguin, £4.95
ISBN 0 14 022641 9

The continuing high levels of unemployment, decline in union membership and general air of job insecurity are widely held to be reducing worker militancy and increasing willingness to accept both lower wage levels and greater management control over how tasks are organized and manned. Yet while economic conditions, and the relative power those conditions bestow on different groups, undoubtedly influence both the level and form of militancy, Scott Lash is correct to challenge the adequacy of this argument as a general explanation of the wide variations in conflict evident in different workgroups, industries and countries.

In seeking other explanations the author draws on information collected in the mid-1970s from workers in France and America, a choice of countries justified in terms of supposed differences in the political attitudes of their workforces. Overall, 239 workers in 11 plants (six in America, five in France) were interviewed, the samples drawn from each plant ranging from 10 to 49 workers. A substantial part of the argument, however, relies on data collected in a subsequent questionnaire in which only a minority of the original respondents took part (100 workers in total, 67 from America and 33 from France).

The rationale behind the choice of work organizations and samples within them is unclear. The American plants, for example, which were concentrated in Chicago and the surrounding region were more heavily unionized than is typical in the United States as a whole. Three of the firms manufactured parts for the automobile industry, three remainder were involved in paper manufacture, food-processing and foundry work. In the French sample, all the organizations involved were part of American multinationals, a factor which could exert a significant (here unconsidered) influence both on internal industrial relations and workers' outlook. The companies in the French sample were engaged in petrochemicals, engineering, paper manufacture and warehousing. All those who took part in the study were male and drawn disproportionately from skilled grades.

Lash distinguishes two forms of militancy – political and industrial – and concentrates on measuring these tendencies and identifying the factors which explain the development of a militant outlook. In terms of political attitudes, the French workers were more left-wing than their American counterparts. Three fifths of the French sample, for example, thought that the Government should nationalize much of the industrial sector compared to only one in ten of the American workers; similarly three quarters of the French workers compared to one fifth of the Americans expressed support for major increases and wealth redistribution.

Yet despite these clear variations in political attitudes, there was less consistent difference between the two samples in relation to industrial militancy (measured by a series of attitudes towards management, job control and trade union functions, assistance at union meetings and votes within the union). While comparisons are inhibited by the small sample sizes of this part of the study, and the lack of any statistical testing of differences, the French did demonstrate a more oppositional attitude in terms of managerial rights over job changes (as noted in Duncan Gallie's earlier study of French and British petrochemical workers, *In Search of the New Working Class*). On the other hand, the American and French samples indicated a broadly similar outlook in other areas (for example on the benefits of trade unionism), and in one or two instances (such as the value of trade unionism for achieving higher wages), the Americans appeared more collectivist than the French. Overall industrial relations proved to be a poor predictor of political radicalism: in America, a militant pursuit of economic improvement might coexist with Republican politics and a middle-class view of society.

In seeking explanations for the different degrees and patterns of radicalism, Lash emphasizes the importance of socialization processes in shaping workers' attitudes. For example, the greater the degree of exposure to militant trade unions during a worker's career (the author considered first and longest-held jobs as well as present job) the more militant his industrial orientation. Similarly, a left-wing political socialization from parents, unions and residential area was associated with greater political militancy.

To examine why trade unionism in France developed a more political and class-conscious character than the essentially economic and apolitical nature of "business unionism" in the United States, Lash devotes two chapters to a brief examination of the historical development of the two labour movements. Among other influential factors, he points to the effect on American unionism of alliances made at various times with middle-class reform groups, which ultimately compromised the development of a concerted, activist left-wing movement. In contrast, the French labour movement was shaped, in its key early development phase, more by contact with ideologies such as socialism and revolutionary syndicalism which fostered an awareness of class conflict.

While the empirical study forms a large part of *The Militant Worker*, the findings from the French and American workers are prefaced by a discussion of Marx and Weber's theories of social class, and of the concept of rights which Lash considers central to any analysis of class conflict. These two sections sit rather uneasily beside each other. Although the concept of rights underpins the industrial militancy measure dealing with the worker's perceived rights over a job and management's right to change the way that job is performed, the empirical section could be read independently.

The McCarthy volume will also attract a selective reading of its many and varied offerings. It is 13 years since the first edition of this book of readings appeared and this enlarged and much revised version reflects the considerable attention which trade unions have attracted in the meantime from politicians and the media as well as from academic researchers. While the seven section themes have remained virtually unaltered (covering union objectives and methods, unions and industrial democracy, union structure, government growth, the economic effects of trade unionism and unions and the state) only seven of the 38 readings in the new edition have survived from its predecessor. The new inclusions reflect subsequent activity and study in such areas as union representation on company boards, theories of trade union growth, factors affecting union structure, the economic consequences of trade unions and recently, the increased attempts by the state to restrict trade union power.

Paul Blyton

Dr Blyton is lecturer in industrial relations at the University of Wales Institute of Science and Technology.

BOOKS

Decline of British influence

Democracy and Empire: Britain 1865–1914
by E. J. Feuchtwanger
Edward Arnold, £25.00 and £9.95
ISBN 0 7131 6161 2 and 6162 0

In recent years there has been only one successful attempt to produce a really *new* British history – and that is the Longman "Foundations of Modern Britain" series whose five volumes span the period from 1370 to 1975. By and large the volumes in Edward Arnold's "New History of England" (1450–1945) reflect a traditional approach to the subject both in the chronological divisions adopted, in the emphasis on the history of governments, and in the concentration upon England rather than Britain.

In Dr Feuchtwanger's book we have essentially a fine narrative history of political issues and political leaders which is very well written, up-to-date and backed by an excellent bibliography. The steel frame of *Democracy and Empire* comprises seven substantial chapters based upon the crisis over reform 1865–67, the Gladstone administration of 1868–74, the Disraeli administration of 1874–80, the Irish Question in English politics in the 1880s, the period of Lord Salisbury's dominance between 1886 and 1895, the disintegration of the Salisbury era up to 1905, and the Liberal governments of 1905–14. Within its sphere the book offers a more detailed treatment than most other textbooks, and it is likely to be a valuable source for students and for those teachers who have become unhappy at the decrepitude of many of the volumes in the Oxford History of England.

The basic shape of *Democracy and Empire* has been extended by several forays beyond political history though with mixed results. There is, for example, a substantial introductory chapter which tackles a miscellany of topics including education, population, the position of women and the churches. However, these scarcely hang together in a coherent way, and one has the impression that the author felt obliged to mention them but preferred to get them out of the way before proceeding to the main business. On the other hand chapter four, entitled "Victorian Confidence Falters", works rather better despite being a rather mixed bag including the economic depression, trade, agriculture, the ideas of economists, socialist organizations poverty, imperialism, the professions, education and sport. Though apparently disparate these subjects all help to reflect the perceived decline of British predominance which culminated in the disasters of the Boer War.

The foreign and imperial policies of the various governments receive fairly extensive treatment, although defence is a neglected topic, and India receives hardly a mention, as is sadly the custom nowadays in general British histories. My only general reservation, however, lies in the fact that imperial-foreign matters tend to be presented simply in terms of the personalities involved, which makes it difficult for the student to grasp the issues. For example, individual episodes in colonial history crop up from time to time, but the overall phenomenon of imperial expansion in the 1880s tends to be lost.

Moreover, the reader inevitably gains the impression that the great statesmen controlled policies and events; yet so often they were but temporary office-holders, tied by existing commitments, inhibited by lack of resources and reacting to developments and initiatives around the world. One wonders whether even Lord Salisbury, for all his long involvement with external affairs, would recognize the figure he cuts in history as the magisterial director of British policy.

Martin Pugh

Dr Pugh is senior lecturer in history at the University of Newcastle. His book "The Tories and the People 1880–1935" will be published in the autumn.

Theseus and Prokrustes decorating a *stamos* made in Athens in the 5th Century BC. The picture comes from a British Museum publication *Greek Vases* by Dyfri Williams, £4.95.

Nazi plans for women

Women, Nazis and Universities: female university students in the Third Reich 1933–1945
by Jacques R. Pauwels
Greenwood Press, £29.95
ISBN 0 313 24203 8

The question of opportunities for and discrimination against women in Hitler's Germany has been well ventilated in the last decade, both by traditional historians and by the new breed of feminist historians, along with their sisters from the women's movement. The feminists have been particularly active in both the United States and the Federal German Republic, projecting a high profile that has put some of the traditionalists – especially the men – on the defensive.

Thus Jacques Pauwels apologetically admits his book's "obvious shortcomings from the feminist point of view". Perhaps unfortunately for the feminists, the picture that has been revealed is one of male chauvinist *intent*, with a conspicuous failure on the part of the Nazi regime to translate discriminatory designs into practice. Women were not driven out of employment in general, nor out of the professions and higher education in particular, contrary to long-standing popular mythology. The alleged Nazi aim of turning every German woman into a full-time "housewife and mother" remained by 1945 as far, if not further, from being fulfilled as it had been in 1933, for the domestic, as well as the expansionist, policies of the Nazi leadership demanded that women as well as men help to staff those occupations where acute shortages of labour were manifest even before the outbreak of war in 1939. These included professions like law and engineering, which would never for a moment have been considered appropriate to "the female nature" in the minds of most committed National Socialists. Accordingly, women had to be encouraged to enter universities, not be excluded from them.

Dr Pauwels's study of women university students in the Third Reich and the Nazi Women Students' Association (ANSt) underscores these findings and brings new evidence to sustain some of them. He further concludes that, largely because of the effects of the great depression, there was a drop in the proportion of female students from lower middle-class or working-class backgrounds, with a corresponding increase in the proportion of those from upper middle-class families, although he cautiously suggests that this development may have been partially reversed during the war.

His most original work is on the ANSt, which has not been previously investigated. The picture that emerges is one that is now familiar from studies which have been made of other National Socialist "affiliated organizations": there was a handful of enthusiasts who tried to mobilize the mass of their constituents – in this case, women students – for a variety of voluntary service activities, and whose efforts met discouraging apathy and, often enough, humiliating failure. The vast majority of women students were simply not interested in spending their spare time working in agriculture or, in wartime, in factories or in the occupied eastern territories. Further, the ANSt's female leadership received little moral or other support from the larger male section of the National Socialist Students' Association, not least because of a prevailing "male exclusionism" or "misogyny". But, in a sense, the women had the better of it, with a massive increase in the number of women students during the war, to maintain the supply of personnel for the professions at a time when young men were urgently required for the armed forces. The influx of women was particularly marked after the decree, in January 1943, for the compulsory mobilization of women for war work, and Dr Pauwels asserts that "unprecedented numbers of young women who would not normally have considered an academic career 'fled to the universities' in order to escape the labor draft". Whether he is justified in calling that "emancipation" is debatable: for a start, it was a trend which would undoubtedly have been sharply reversed in the event of a Nazi victory. Encouraging women to enter universities in wartime was, like drafting them into munitions factories, only ever regarded as an undesirable temporary expedient by the Nazi leadership.

It is useful to have further confirmation, from the constituency of women students, of the lack of enthusiasm which there was for National Socialism, both as a creed and as a political movement which made unpopular demands on Germans. Dr Pauwels's study is, however, flawed at times by an absence of perspective, by implicit contradictions, and by a lack of feel for the time and place he is writing about which leads him to say some very questionable things. For example, statistical tables which describe "the decline of the German student population" from a base of 1931=100 ignore the fact that student numbers were abnormally high in 1931. "Careers that had never been open to women anyway" are not the same as occupations where women had been only recently and poorly represented, which was the reality. It is news to me that Rudolf Hess was an "overt homosexual" and that Gertrud Bäumer is one of those "sometimes referred to as 'Nazi feminists' ". One could, at leisure, point to several other instances of these kinds of misapprehension. Yet there are light and perceptive touches, too. The upper middle-class beneficiaries of National Socialism, says Dr Pauwels, "never fully *identified* with [it] . . . and mistrusted its egalitarian 'socialistic', and 'revolutionary' slogans and programs". For their part, peasants could be the "despair" of ANSt volunteer workers when they turned out to be "very adept at quoting the Bible, but had never heard of such Nazi celebrities as Hess, Frick, or Goebbels". Dr Pauwels has thus contributed to the strange picture that has been recently emerging of a "totalitarian" regime faced with a long and uphill struggle against tradition and apathy.

Jill Stephenson

Dr Stephenson is senior lecturer in history at the University of Edinburgh.

Methods of history

The Pursuit of History: aims, methods and new directions in the study of modern history
by John Tosh
Longman, £4.95
ISBN 0 582 49218 1

This book is aimed primarily at history undergraduates and is deliberately confined to themes of immediate practical use to students. Longer and more wide-ranging than Professor Cannon's *Teaching History at University* (1984), it is less forbidding than Professor Marwick's *The Nature of History* (1970, 1981).

John Tosh, senior lecturer in history at the Polytechnic of North London, argues persuasively that history's claim to social relevance is the awareness which it conveys of what is enduring and what ephemeral; he describes the variety of verbal sources from which modern history has to be written, and demonstrates that historical method is more than a systematized commonsense. He warns against what Professor Cobb has called "source-mining" and in chapters on developments in this century in political and socio-economic history respectively he expounds the difficulty of writing both monographs and surveys. The historian's business, he reminds us, is to substitute more significant connections for those of chronology. All this is very commendable and Tosh writes clearly and pungently, never failing to offer a succinct, quotable summary of any point made, but it is no more than could have been expected in a book of this title.

What distinguishes this unpretentious book, however, and means that it will be read with advantage by all who are interested in, or engaged in, historical inquiry are the further dimensions offered. Tosh is a specialist in African history and consequently brings a particular insight to bear on history generally – witness his discussion of the regressive method by which, for instance, Marc Bloch used a familiarity with the structure of French rural society in the 18th century to understand medieval agrarian life. Again, he is good at showing the contribution anthropology can make to the discipline of history: "Certain long-lost features of our own society such as the blood-feud or witchcraft accusations still persist in some parts of the world today and . . . direct observation of the modern variant prompts a fuller grasp of the relevant questions to be asked." Sympathetic to a Marxist interpretation, he provides a particularly intelligible account of the Marxist viewpoint. Familiar with both quantitative approaches and oral history, he is always concerned to delimit the usefulness of a technique. Thus, he emphasizes that "statistics may serve to reveal or clarify a particular tendency; but how we *interpret* that tendency . . . is a matter for seasoned historical judgement". Or, again, "Oral history allows the voice of ordinary people to be heard alongside the careful marshalling of social facts in the written record".

A useful critical bibliography and a full index are provided, rendering this a very satisfactory as well as stimulating *vade-mecum* for all who work at history.

G. R. Batho

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Water finding its own level

The New River: a legal history
by Bernard Rudden
Clarendon Press: Oxford University Press, £20.00
ISBN 0 19 825497 0

Everyone remotely interested in the genesis of urban water supplies has heard of the New River. It is no secret that its commercial structure was "peculiar" and its subsequent history complicated. Given the intricate web of litigation in which it was involved, it is hardly surprising that its full story has had to await a legal historian of sufficient perseverance and enterprise. As the title makes clear, this book is not so much a general history as one which approaches the company's activities from a highly specialized viewpoint. Yet the author has interpreted his brief broadly enough for his work to repay the attention of economic and financial historians as well as lawyers.

By the early 17th century the growth of London demanded the additional provision of household water. Acts of 1605 and 1606 permitted the construction of a suitable watercourse, but it was only after the slightly later involvement of Hugh Myddleton, a shrewd London businessman who hailed from Denbighshire, that operations were set in motion. Myddleton made an agreement with the City to undertake the necessary works and bring water from Ware (the source of excellent supplies) at his own expense in return for a grant of "the whole entire and sole profitt and benefitt". Various difficulties caused him to invoke Crown support and also to issue shares to 29 adventurers. A charter of 1619 incorporated the latter as the Governor and Company of the New River, but the curious legal origins – at a time when, to put it mildly, company law was in its infancy – left a rich field for lawsuits.

There were not merely conflicts between navigation and water supply (once the company had abstracted water from the River Lea to satisfy increasing demand): the very nature of the company and the manner of its tenure were subjects for almost endless dispute and bewilderment. Indeed, one Lord Chancellor could only see the company as "the common hand to receive the profits, and there is no other way to come at it". Juridical opinion was long divided upon what exactly the shares were *in*. Were they in the river bed, or merely *in aquae ductu*, in subsequent land freeholds; or, as it largely turned out after countless lawsuits, in the "profits advantages benefitt and comodditie" of the undertaking? Was each share, as Hardwicke believed, "a legal estate and corporal inheritance" or, as Sir Joseph Jekyll considered, realty but *incorporal*?

All this may sound dry (if one dare use the word of the New River) to the layman. The contrary is true. We are guided through the law with great skill; and the very scrutiny of one institution over three and a half centuries inevitably throws considerable light on the development of business organization, governance and finance. The book is particularly valuable for its treatment of the conceptualization of property where the New River again proved to be something of a pioneer. As the author remarks, the law of property has in many respects witnessed a slow separation of the owner "from the physical object which he owns". One virtue of New River shares was precisely that they were capable of use "as the object of endowment and investment" well before English law managed to treat shares in other companies in quite the same way.

Baron F. Duckham

Baron F. Duckham is professor of history at St David's University College, Lampeter.

BOOKS

Playful physicist

Surely You're Joking, Mr Feynman! adventures of a curious character
by Richard Feynman
as told to Ralph Leighton
Norton, £14.50
ISBN 0 393 01921 7

Richard Feynman insists that almost everything he did was just play. This is obvious in his delight in drumming, or getting up to near professional standards on the frigidiera – "a toy frying pan, made of metal, about six inches in diameter", beaten with a little metal stick - in Rio de Janeiro. Playful curiosity drove him into learning to draw and paint, to teach himself Portuguese, to work out the principles of the Mayan calendar, and to set himself to find out how a "professional gambler" could possibly make a living at Las Vegas. The same motives led him into picking the locks or discovering the combinations of every safe and filing cabinet at Los Alamos.

Los Alamos? What was such a crazy guy doing in such a serious place? Far from having real fun, as the youngest, brightest whizzkid building the first atomic bomb, he must have been deeply unhappy, for his wife was dying of tuberculosis in a distant hospital. But physics became play again, after the war, and gave him beautiful solutions to some of the toughest problems in both high-energy *and* low-temperature physics. He has really enjoyed the past 30 years as an inspiring teacher at the California Institute of Technology in Pasadena – and one of the most admired physicists in the world.

This delightful collection of anecdotes, put together out of taped conversations, is to be read as the picaresque tale of a high-hearted and engaging person to whom all sorts of adventures just happen – or have been made to happen. But he doesn't come across as a frivolous person. His feelings about himself and others are sincere and moving. When he makes a little mischief, it is innocent and without malice, and he is remarkably sympathetic to the strictly non-academic folk, usually women, whom he meets in strictly non-academic places, such as bars and nightclubs. His scorn is for pomposity, pretentious stupidity or hypocrisy, embodied in high officials, aristocrats, generals, and professors of sociology – the representatives of the worlds of politics and "culture", of which he says he has no understanding and with which he will have no truck.

The unaffected manner is perfectly natural, but it takes strength of will to maintain. When the greatest physicists of the time – Niels Bohr and Enrico

BBC COPYRIGHT

Richard Feynman

Fermi – came to Los Alamos, he would argue with them man to man, for when Feynman is talking physics he can think of nothing else. He broke the growing grip of alcohol by a single decision to quit, and brushed aside all the spiritual temptations arising from winning a Nobel prize (in 1965). If a bunch of pundits in New York want to tickle their vanity by pronouncing on the problems of humanity, he listens to them for a few days then tells them they are all talking gobbledygook and flies back thankfully to California, and the sanity of topless bars and astrophysics. He decided long ago that he didn't have to feel responsible for the world, so why not just have fun playing with the Dirac equation or painting a nude female toreador being chased by a manheaded bull for the proprietor of a massage parlour.

Enormously as I admire Feynman's style of theoretical physics – his intuitive grasp of the way the world works, and its translation into compelling pictorial relationships – and much as I approve of his relaxed life style, I am tempted into pompous pundity against the role he assigns himself in a larger world. Take, for example, his attitude towards science education. Being a highly original thinker and a brilliant communicator, he is able to challenge his pupils and readers to think for themselves until they come to see how it *really* is, in his own simple, lucid terms. But when he investigates – very conscientiously – all the science textbooks in California, he discovers that they are chosen by a procedure that is wide open to corruption and are hopelessly bad anyway. Does he begin to ask himself how the writers and users of such books were educated, and what the problems are of translating his own extraordinary understanding of physics into forms that can slowly be grasped by more ordinary people? No, he resigns from the committee and goes back to his study.

Again, in Brazil, he publicly denounces the rote learning that made higher education there into an empty ritual, as if this were not obvious to every American or European scientist who has visited a developing country; but he does not make any effort to understand how such a situation can have arisen, why it is so deeply entrenched, or how it might be changed. Being a scientist, he is sure that he has done his duty by pointing out to people how stupid they are being: put the right terms into the equation, and you will surely solve your problem.

Feynman is supremely an individualist, both as a physicist and as a person. He must have been born that way, and has had the good fortune to live at a time, and in a place, where this characteristic could be allowed to flower to the full. Even if he had been born that same year in Kiev, his talents might well have blossomed just as fruitfully – although the mind boggles at the thought of all those locks he would have longed to pick. Provided such eccentrics keep their noses out of politics and culture, they are tolerated, and used, by lesser mortals with greater power. But they might ask themselves whether there will always be an honoured place for "play" in the scientific world they themselves are so cheerfully bringing into being.

John Zlman

John Zlman was professor of theoretical physics at the University of Bristol. He is now visiting professor in the department of humanities and social and economic studies at Imperial College, London.

Against the grain

The Vavilov Affair
by Mark Popovsky
Archon Books (CLIO Distribution Services), £21.40
ISBN 0 208 02035 7

The case of N. I. Vavilov is one of the most poignant of all the Soviet scientists who fell victim to Stalinism. In Vavilov the Bolsheviks inherited a geneticist of international repute who was uniquely well qualified and personally dedicated to improving the yields of grains and other crops which the Soviet government soon recognized as vital to the attainment of its revolutionary goals. Yet it was Lysenko, a person of limited scientific training who, by the end of the 1930s, had assumed the leadership of the vast network of research establishments and experimental stations created by Vavilov. In January 1943 Vavilov died in Saratov prison having endured more than two years at the hands of the secret police following his arrest in August 1940 on charges of spying and anti-Soviet activities.

Although Vavilov was officially rehabilitated in 1955, it was not until after Khrushchev's involuntary retirement in 1964 that Lysenko's influence was finally broken. In these circumstances Popovsky, then a Soviet journalist, succeeded in gaining access to the files held on the Vavilov case in the offices of the Soviet Procurator General. On the basis of these and other sources, oral and written, Popovsky composed this biography which circulated unofficially in the Soviet Union prior to his emigration in 1977.

Popovsky's account is interesting mainly because of the reconstruction he attempts of the events which surrounded Vavilov's arrest while leading an expedition to the western fringes of the USSR. Relying substantially on information contained in Vavilov's file, Popovsky reconstructs the decision to arrest him and describes the subsequent interrogation and secret trial. When piecing together Vavilov's experience of incarceration and the circumstances of his untimely death, Popovsky also draws extensively on the testimony of witnesses associated with Saratov prison at that time. Altogether, Popovsky succeeds in throwing much light on this period.

Although this constitutes the most informative part of Popovsky's account, there are other virtues. The close congruence that can occur in plant breeding between the achievements of science and untutored "know-how" is usefully brought out in the account of Vavilov's relations with the horticulturalist Michurin. Also of interest are Popovsky's comments on the role of the Soviet philosopher Prezent, who provided Lysenko's similarly untutored, but mostly spurious, agronomic techniques with a theoretical veneer based on the theories of the early 19th-century French naturalist Lamarck. The significance of the compatibility of Lamarck's emphasis on the inheritance of acquired characteristics in plants and animals and a simplistic materialist philosophy favoured by Stalin is effectively demonstrated.

More controversial is Popovsky's emphasis on Vavilov's role in advising Lysenko's career during the early 1930s. Although Vavilov publicly praised the successes Lysenko claimed for his techniques, Zhores Medvedev in particular, has questioned whether Vavilov made any significant contribution to Lysenko's growing influence. In dealing with this question, Popovsky might have dealt more comprehensively with the pressures facing Vavilov during the frantic drive to collectivize Soviet agriculture and the famine that followed immediately afterwards. If it had been made clear that the impossible demands made on Soviet agricultural scientists to produce new varieties of cereals in record time were typical of the pressures being generally exerted on the economy during the early 1930s, the nature of the opportunity presented to Lysenko might have become more apparent. By responding enthusiastically to such demands, Lysenko was conforming to the prevailing pattern from which it was usually dangerous to deviate openly. Thus, essential conditions for Lysenko's advancement were set by government economic policy, and in this context that any contribution Vavilov may have made to his career should be assessed.

Vavilov's response to his political environment is interpreted by Popovsky in terms of a romantic image of the single-minded scientist for whom the outside world represents something of an enigma. However, it seems reasonable to ask whether the creator of an immense research network, relying on government funds and employing thousands of specialists engaged in the solution of some of the most pressing problems facing the Soviet economy could have been as meagrely endowed with political acumen as Popovsky seems to suggest.

A recurring flaw in this account is the tendency to fill out the narrative with uninhibited assertions about individual motives, often stated as established facts. Indeed, the point where evidence peters out and speculation begins is not always made clear, in part because of the unsystematic use of footnotes. Although the disparate sources used by Soviet writers gather ing information on sensitive subjects difficult circumstances may not always lend themselves to the orthodoxies of western academic publishing, a more thorough attempt to assess the quality of the data could only have enhanced the authority of this account.

Peter Kneen

Peter Kneen is lecturer in politics at the University of Durham.

BOOKS

Cosmic digest

Universe
by William J. Kaufmann, III
Freeman, £29.95
ISBN 0 7167 1673 9

The increasing pace of astronomical progress on a wide variety of fronts often makes it difficult to obtain an up-to-date account of the field. This is especially true for the layman, who has only a limited amount of time to peruse popular science journals; but it is also true for the professional scientist, since the information explosion to which he is exposed necessarily compresses his domain of expertise. Occasionally, therefore, it is important for both layman and scientist alike to stand back and gain a wider perspective of the field. *Universe* is a fine example of a book which provides just such a perspective. Its author, William Kaufmann, is one of America's foremost popularizers of science, and this book is perhaps the best he has produced: its 594 pages are packed with the latest information on almost every branch of astronomy and yet present it in a digestible way. The reader should be warned, however, that the book's title is motivated by its comprehensiveness: the subject-matter is not primarily cosmology.

How does Kaufmann make his material digestible? First, he includes a considerable amount of historical information, which always helps to make a subject more alive. Science should be more than mere facts; indeed, it is sometimes just as illuminating to know where our predecessors went wrong as where they went right. Second, more technical discussions are relegated to "boxes", so that less versatile reader's can skip them without becoming bogged down in detail. Third, each chapter has a brief abstract at the beginning and a summary of the main points at the end. Fourth, and most important, the book impresses by its lavish use of illustration and photograph, the use of colour photographs being particularly impressive. Although it is now a standard astronomical technique to colour-code information in a picture (especially when one wants to indicate how the Universe appears in different wavebands), it is a technique which few popular works have exploited.

Ostensibly aimed at undergraduates, the book includes both useful review questions and advanced questions at the end of each chapter. These test the reader's ability to think about the material as well as absorb it. In practice, however, the book should appeal to a far wider audience. Although it contains all the information which would be required in an undergraduate text, it presents it so attractively that any reader could study it for pleasure even if he was not pursuing a course. And as the level of discussion is similar to that of *Scientific American*, it should also appeal to professional scientists in other fields. Each chapter concludes with a useful set of references to other popular articles, and the book also includes essays by prominent astronomers.

The first five chapters introduce the reader to the foundations of astronomy. Here, and throughout the book, Kaufmann's technique is to emphasize information which can be conveyed on a non-mathematical or pictorial level. Thus, while the discussion of a technical subject like relativity is somewhat scanty, the comprehensive discussion of the different types of telescopes and the comparison of the views of the Universe afforded in different wavebands is excellent. The next eleven chapters, on the Solar System, systematically discuss each of the planets and their moons. This is probably the most valuable part of the book. As a result of the space programme, there has been a vast increase in our knowledge of planetary science during the past ten years, and it is very useful to have this new material brought together.

After a general account of the properties of light in chapter 17, the next seven chapters discuss the Sun and stellar evolution. The treatment of stellar deaths (supernovae, neutron stars, and black holes) is fairly standard; but the discussion of stellar births and molecular clouds is particularly useful, as this subject has seen considerable progress recently through infrared observations. Chapter 25, on the Milky Way, contains a particularly good exposition of mechanisms for making spiral arms, as well as an up-to-date discussion of the galactic nucleus. This is followed by a treatment of galaxies and quasars. The final two chapters tackle cosmology and the physics of the early Universe. Despite the book's title, however, these topics are dealt with rather scantily, at least compared to the comprehensive way in which planetary science is discussed.

I can strongly recommend this book, not only as an undergraduate text, but also to anyone who wants to gain a general account of astronomical progress at a fairly non-technical level.

Bernard Carr

Bernard Carr is lecturer in the school of mathematical sciences at Queen Mary College, London.

Sydney Parkinson's portrait of a New Zeland man (1770), from Rüdiger Joppien and Bernard Smith's *The Art of Captain Cook's Voyages*, volume one: *The Voyage of the Endeavour 1768–1771* (Yale University Press, £40.00).

Greenfly colonies

Aphid Ecology
by A. F. G. Dixon
Blackie, £17.95
ISBN 0 216 91647 X

To the non-specialist, aphids are often perceived not as individual insects but rather as populations, revealing their presence as an apparently amorphous mass on leaves, stems, buds, flowers or developing fruits. The fact that they produce a sticky, sugary waste product (honeydew), associated with which are often sooty-dark fungi and the aphids' own cast skins, adds to the general impression of contamination associated with their colonies. Indeed, French aphidologists often use the word "pullulation" in scientific papers to describe the growth of these populations.

However, the observer who looks a little closer, ideally with a hand lens, sees a wide diversity of size and shape within a colony: winged and wingless adults may well be evident; immature stages (nymphs) of all sizes will usually be present; and a rich fauna of insects associated with the aphid colonies will be found near all but the smallest colonies. Groups which prey or parasitize the aphids include ladybirds and other beetles, hoverfly larvae, parasitic wasps and lacewing larvae; and insects such as ants, wasps and flies exploit the honeydew more than the aphids themselves.

For the experimental ecologist, aphids are an ideal group to study because of their abundance, ease of culturing, rich diversity of life-history strategy, and their important contribution to many terrestrial communities. In this book their fascinating ecology is described by one of the world's leading experimental aphidologists, and I would strongly recommend it to all research aphidologists. I use the word "aphidologists" deliberately, as it sometimes seems that some of the research output on aphids, fascinating though it may be, is concerned with aphids first and ecology second. The special nature of the group may well be partly to blame, in that such topics as control of polymorphism (with all its specialist terminology) and patterns of life-history strategy do not easily find a place in more general ecology textbooks. Aphid population ecology however, has made its mark in the non-aphid ecological literature – in particular, those aspects concerned with population regulation and the role of predation, both of which are well covered here. This has also been the area in which computer simulation modelling has been considered an appropriate methodolgy; indeed, some such models have crept into more recent ecological texts.

For the same reasons that research workers find aphids attractive to study, teachers of ecology find they provide good material in the laboratory and field. Such perennial syllabus topics as "study of a habitat", "niche", "populations", "communities" and "predation" can all be taught in a dynamic way using live aphids. Although books aimed specifically at ecology teaching (and including aphid examples) do exist, a resourceful teacher could easily be able to translate the many ideas in this book into teaching packages. All they need are seedling plants, artificial light (in winter) and a source of animals.

One minor criticism is that although Professor Dixon's group at Norwich has been highly productive, there does seem to be a strong bias towards examples selected from their work.

The publication of a paperback version would enable this readable distillation of aphid ecology to reach the wide audience it deserves.

S. D. Wratten

S. D. Wratten is senior lecturer in ecology at the University of Southampton.

Software crisis

Software Engineering
by Marc Thorin
Butterworths, £11.00
ISBN 0 408 01426 1

In the early days of computing, when it was bright confident morning, nobody worried about the "software crisis". The problems were there to be solved, the machines were there to solve them, and that was that. As the machines (and the problems) grew bigger, there developed a worrying gap between expectation and achievement. It was much more difficult than anyone had anticipated to write computer programs that were free of error: "It's the computer" became a stock excuse for any mistakes; and people began to regard computer errors as on a par with original sin. The turning point perhaps came when one of the National Aeronautics and Space Administration's unmanned Saturn rockets had to be destroyed in flight because a programming error in the control programs had sent if off course. The software crisis had arrived.

One of the responses was the setting up in 1967 of a study group on computer science under the auspices of the NATO science committee, which in 1967 organized a working conference on software engineering. The invention of this title was a bold and imaginative move, "deliberately chosen as being provocative, in implying the need for software manufacture to be based on the types of theoretical foundations and practical disciplines that are traditional in the established branches of engineering". We are all software engineers now, perhaps believing that just using the words solves the problem. For the most part, software engineering means using structured programming techniques, and possibly structured design techniques. Although this certainly improves the quality of programs, it is a far cry from real engineering and it will continue to be until computer science actually has the kind of theoretical foundations that underpin other branches of engineering.

This book makes a brave attempt to define software engineering as a true engineering discipline. The first three chapters provide an abstract model of what computing is about: chapter one gives a model of the overall computer system; chapter two covers the properties of the entities that are manipulated by computers; and chapter three describes the kinds of actions that are available for manipulating those entities. These chapters summarize in 50 pages many of the formal concepts of computer science – in particular, chapter two contains the essence of a complete course in data structures. Chapter four introduces the criteria that can be used in judging the quality of a software design.

The last two chapters cover structure: chapter five, on structured entities, completes the data structures course started in chapter two, covering hash tables, trees and networks; and chapter six, on structured actions, covers procedures, blocks, and so on. A lot of this chapter is devoted to design, especially top-down design, stepwise refinement and modularization. Reliability and testing are also covered, and the last few pages deal concisely with concurrent activities, synchronization, and so on.

The style of writing is slightly disconnected – the text is interspersed with examples and "remarks". The examples are uniformly helpful, and the remarks are illuminating: one soon gets used to the author's way of presenting things. It is not clear to me that the book is really about software engineering *per se*: a lot of the content would fit under the title *Foundations of Computer Science*. Certainly, everyone teaching computer science should read it; practitioners of programming whose education did not include a formal treatment of computer science should read it; and all potential authors should read it to see how concisely and clearly this kind of material can be put across.

David Barron

Professor Barron is head of the department of computer studies at the University of Southampton.

The Warnock report on human fertilization and embryology has been published, with two new chapters by Mary Warnock, as *A Question of Life* by Blackwell at £4.95.

A paperback edition of Christian de Duve's *A Guided Tour of the Living Cell* (reviewed on April 19, 1985) has been published by Freeman at £24.95.

Formative years

The Young Einstein: the advent of relativity
by Lewis Pyenson
Adam Hilger, £19.95
ISBN 0 85274 799

Lewis Pyenson's avowed emphasis in this book is on the context of Einstein's development. Indeed, so successful is that emphasis, especially on the turmoil in the ideas of German education at the end of the 19th century, that Einstein himself tends to fade into the background – a situation he would have relished. Indeed, the one outstanding fact that Pyenson's fascinating study makes clear is that Einstein was a marginal man – someone destined always to be out of joint no matter how his circumstances changed.

The educational struggles in Wilhelmian Germany between 1888 and 1900 – the *Schulkrieg* – involved those who wanted to retain an education based exclusively on classical philology (at school level, Latin and Greek) and those who (successfully) wanted training in modern languages and science. The struggles centred on Prussia, but the educational policy in the other German states, though nominally independent, followed the Prussian model. Wilhelm II took a personal interest, and vested interests (the status of professions) ensured that there was bitter argument. As early as 1886, for example, the well-known physicist and philosopher of science Ernst Mach had denounced the stranglehold of classical philology on preparing pupils for university: "In modern times the Greeks and Romans are simply two objects, among others, for archaeological and historical research". Only mathematics and natural science, he claimed, showed how to elucidate the "economical organization and organic association of concepts". By 1890, the reactionary *Gymnasium* professor Gustav Uhlig's petition "that the German nation has every reason to be grateful for that which the *Gymnasien* have attained and will attain" attracted more than 4,000 signatures, including one-third (500) of the university *Dozenten*. Uhlig urged that the *Gymnasien* remain centres of exclusive instruction in Greek and Latin.

That was the year in which Einstein joined the Luitpold gymnasium in Munich; one with quite a liberal atmosphere but one which still oppressed him. What would a stricter one have done? At all events, he was not sorry to leave without the *Abitur* in his sixth year, when his father's business collapsed. In Italy, he was able to stand back and definitively reject Germany. At sixteen he arrived in Switzerland to pass, through the preparation of a Cantonal school, to the Eidgenössische Technische Hochschule (ETH) in Zurich. By this time he had already mastered Heinrich Hertz's electrodynamics. At the ETH, however, Hermann Minkowski's mathematics lectures were uncongenial to Einstein and he fared little better with the mechanics. Although Minkowski's mathematical learning was impeccable, he was unable or unwilling to dilute it with any appeal to physical intuition or to practical examples. His lectures were "dull, formal recitations"; his treatment of pure mathematics was such as to reinforce Einstein's opinion that it was of little use to the physicist; and his applied teaching was quite uncongenial to Einstein's view of mathematical formalism as only one tool in the kit available for immensely difficult but rewarding "physical reasoning".

The nub of the matter was Einstein's refusal to accept mathematical manipulation as a substitute. Although when the time came for him to formulate general relativity (with my friend, the mathematician, Marcel Grossmann"), he was happy to accept the genuine help that the elegant mathematics provided in understanding gravitation, his suspicion of the subject contributed to his rejection of formalistic quantum mechanics in the 1920s, where physical reasoning was initially lacking and later was to be well-nigh forbidden. In the 1920s, for example, Einstein was saying: "I'm afraid I'm wrong again. I can't put my theory into words. I can only formulate it mathematically, and that's suspicious". And in the 1930s, Leopold Infeld reported Einstein's belief that mathematical formalism was something to be mastered and then transceded before truth could be fathomed.

So much for Einstein's education; scarcely less interesting are the details of the (often-ailing) Elecktro-Technische Fabrik J. Einstein & Co of his father and uncle, which came near (but for lack of capital) to becoming a major force in Munich industry. This existed at a time when electric power was just developing: the influence on Einstein's "On the electrodynamics of moving bodies" is clear.

In a third chapter Pyenson tries to assess the social context of Einstein. What emerges as typical is that "Einstein devoted much time to unpopular pacifist causes instead of cultivating the confidence of decision-makers". Such a feature of the young man indicates a solitary character, better able to judge for himself than to discuss with others. Indeed, Einstein's individualism and his nature as a "marginal man" was very much in evidence later in his life. When confronted with reports that the investigation of the atomic transformation of mass to energy was being pursued in Nazi Germany with the intention of making a devastating bomb, he assessed this information from his own, true, and strongly advised the United States to follow suit, thus instigating the Manhattan project to build the first atomic bomb. If he had consulted others (not only scientists), he might have been reminded of the decline in German physics resulting from the removal of both Jews and men of liberal views, not to mention deliberate internal obstructions; this would have rendered the suggestion of a successful Nazi bomb very premature, to say the least.

A fourth chapter deals with the mutual influences of Einstein and Minkowski, neither of whom thought very well of the other. Minkowski told his students that Einstein was a "lazy dog" in Zurich; and he saw the special theory of relativity as just a contribution to the electron theory, without realizing the measurement theory aspect.

Later chapters deal with the reception of relativity in late Wilhelmian Germany; with Leibnix as the strongest influence in misunderstanding of the theory; with the strange failure of many distinguished physicists at the 1905 Göttingen seminar which had been attempting to formulate the problem, to arrive at the same solution; and with the attempts to reform university education in physics – a story with strange echoes of the corresponding process in England for freeing mathematics from the monopoly of the mathematics tripos, with Göttingen playing the part of Cambridge.

C. W. Kilmister

C. W. Kilmister is an honorary research fellow in the department of history and philosophy of science at Chelsea College, London

Steelwork design

Elementary Structural Design of Steelwork to BS449
by P. C. L. Croxton, L. H. Martin and J. A. Purkiss
Edward Arnold, £13.75
ISBN 0 7131 3531 X

All undergraduate courses in civil engineering provide their students with at least an introduction to the design of steel buildings, bridges and masts. This would normally cover the selection of a suitable structural form, assessment of the loads on that structure due to gravity, wind action (and so on), the determination of the forces in each component part, and finally the selection of structural members to resist those forces safely. The information on which the final stage is based is largely taken from British Standards, the most important of which in this context is BS449: "The structural use of steel in buildings".

That code is not a textbook; rather it is a collection of tables and formulae which provide limits to the stresses which may safely be developed due to structural actions such as bending, compression, and so on, supplemented by general rules of "good practice" which, if followed correctly, should prevent such undesirable occurrences as tearing of material around bolt holes or floor beams deflecting so much that damage is caused to the ceilings below.

Many generations of students have struggled to come to terms with the application of this document (it first appeared in 1931 and has been revised several times) to their own design exercises and projects as the first step to becoming competent in designing the type of steel structure which we see around us. Those who continue to work in this particular area after graduation will continue to use BS449, sharpening their skills considerably in professional design offices through discussions with experienced designers.

Teachers of structural steel design are always looking for suitable texts to use in preparing their courses and to recommend to their students for supplementary reading. Very few suitable books exist, the market being largely confined to American-oriented texts (which are based on the design data and principles of the American equivalent of BS449), older texts which are not really relevant to the forms of steel construction used nowadays or to those likely to be required in the future, and rather advanced texts directed at the specialist wanting a more thorough treatment of a particular aspect of steelwork design than that required at undergraduate level. This book is therefore likely to find a ready market with both staff and students.

It presents a simplified, largely descriptive treatment of the background to a number of the more frequently used clauses, showing how theory, test data and judgement are all utilized in producing suitable rules. This is followed by a clear description of the application of the appropriate group of clauses to the design of particular elements – for example, beams, columns and connections – each procedure being illustrated by several worked examples. In some areas, the text digresses to include rather more theoretical material on structural analysis, especially where this is at an advanced level and relates specifically to steel structures – for example, the design of low-rise industrial frame buildings using the so-called "plastic theory". It also provides the reader with sufficient material on topics such as the production and properties of steel itself, the history of steel structures, and weld types and welding procedures that lie on the boundaries of structural steel design but which must be properly appreciated by the apprentice designer.

Because it covers an area in which little competition exists, this book is likely to be used quite widely – at least until BS449 is replaced by its updated successor BS5950, expected in 1986. In the preface, the authors tell us of their conscious decision to base the text on the existing code; they may now be busy preparing the revised edition covering the new document.

D. A. Nethercot

D. A. Nethercot is senior lecturer in the department of civil and structural engineering at the University of Sheffield.

Events

Salford University is to be the venue for the 23rd seminar on trypanosomiasis (sleeping sickness) to be held on September 26 and 27.

The event is being arranged by the British Society for Parasitology and will be supported by grants from the Royal Society and the Wellcome Trust.

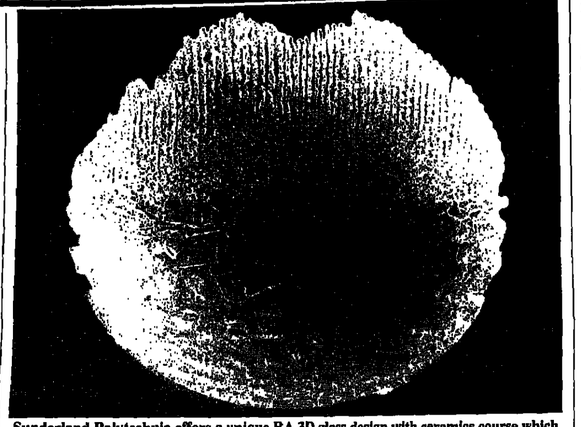
For further information, please contact either Professor David Molyneux or the conference office at the University of Salford, telephone 061-736 5843 x 621 or 650.

Ethical issues in Caring is the title of a conference to be held at Owens Park, University of Manchester between September 6 and 8, intended for practitioners of the caring professions and philosophers addressing practical ethical problems.

The event will bring together nurses, clinical psychologists, doctors, social workers, counsellors and psychotherapists in a dialogue with philosophers, pastoral theologians and lay people. For full details, please contact Gavin J. Fairbairn, 25 Russell Road, Whalley Range, Manchester M16 8DJ.

The Royal Northern College of Music is to hold a one-day conference for violas and double reeds on October 27. This will consist of masterclasses, workshops, concerts and seminars for students, teachers, amateur and professional players of viola, oboe and bassoon. The RNCM has also planned a series of three preview days which will provide an opportunity for students to discuss course selection and career options in music. These will be on October 2 (all instruments, voice, composition and academic studies), October 13 (wind and percussion) and October 27 (strings and woodwind). Details from Judy Watt, 124 Oxford Road, Manchester, phone 061 273 6283.

To mark the diamond jubilee of its service to higher education, the Association of Indian Universities is to organize – jointly with the Indian Institute of Technology, Jawaharlal Nehru University, Jamia Millia Islamia and the University of Delhi – an international conference on "New Technologies in Higher Education", to be held on November 28 and 29 at New Delhi. Details from the deputy secretary for library and documentation, AIU House, 16 Kotla Marg, New Delhi 110 002 India.



Sunderland Polytechnic offers a unique BA 3D glass design with ceramics course which emphasises glass artistry. The first external exhibition of work by graduates from the course is to be held at Smiths Galleries, Earlham Street, Covent Garden, London from August 5 to 11. Illustrated is Dawn Storey's striking "Slumped and fused landscape bowl".

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Grants

GLASGOW

Professor J. H. Barber, £19,998 from Astra Clinical Research Unit (computer diagnostic decision-making in dyspepsia in general practice); Dr A. K. Foulis and Dr H. Simpson, £12,704 from British Diabetic Association (possible aberrant expression of HLA-DR on B cells in the pancreas on recent onset type-1 diabetics in man); Dr J. Done, £7,861 from British Heart Foundation (post ischaemic regeneration of adenine nucleotides in myocardium); Professor A. Curtis and Professor C. D. Wilkinson, £39,874 from British Petroleum (behaviour of cells on patterned substrates); Professor B. D. Leake, £40,000 from British (research fellowship in toxicology); Professor K. C. Calman, £14,341 from Cancer Research Campaign (cancer education development for GPs); Dr G. McIlwaine, £17,000 from Scottish Economic Community (research plans for very low birth weight infants); Professor A. M. Harper, £23,000 from Fraser Foundation (refurbishment and equipment of laboratories and for endowment of Fraser Fellowship); Dr N. McNeilly, Dr A. Parkins and Dr G. Fishwick, £15,000 from ICI Pharmaceutical Division (animal husbandry); Professor J. L. Reid, £30,000 from Association Pharmaceuticals (adding a prazosin single dose to chronic kafanserin and study-injected subjects on weight-watch); Dr J. A. Bogan, £12,000 from Ministry of Agriculture, Fisheries and Food (measurement of benzimidazoles and their metabolites in animal tissues); Dr D. P. Leader, £10,000 from Muscular Dystrophy Group (postgraduate studentship); Professor J. A. Simpson, £22,000 from Muscular Dystrophy Group (MS research); Professor W. P. St. Jarrett, $225,500 from National Institutes of Health (development of vaccine antigen preparation of HTLV III); Professor A. C. Kennedy and Dr J. M. Boulton-Jones, £16,678 from National Kidney Research Fund (variations of inherited properties of glomerulus in pathogenesis of glomerulonephritis); Dr J. D. Barry, £70,766 from Overseas Development Administration (identification of surface antigens of procyclic trypanosomes and cost-effectiveness of shared care for hypertensive patients in inner city communities); Dr G. H. Clements, £32,021 from Scottish Hospitals Endowments Research Trust (rapid detection of cytomegalovirus infections in renal transplantation patients); Dr J. W. Cuthbert, £26,540 from Scottish Hospital Endowments Research Trust (study of Langerhans cells in the cervix uteri); Dr G. M. Dutton and Professor W. S. Foulds, £16,769 from Scottish Hospital Endowments Research Trust (study of Langerhans cells in the cervix uteri); Dr G. M. Dutton and Professor W. S. Foulds, £16,769 from Scottish Hospital Endowments Research Trust (study of T. congolense and T. brucei, which provoke blocking immunity) Dr B. P. Solomon, £13,065 from Overseas Development Administration (management programme to increase haemability race of marine turtles); Dr R. J. Docherty, £41,778 from Royal National Institute for the Blind (in vitro study using novel model system on cellular infiltration and proliferation in the vitreous of the eye); Professor J. M. Reid and Dr R. G. Gavan, £316,863 from SERC (experiments with electron accelerators at Mainz, MIT, Nikhef and Kelvin Laboratories); Dr I. M. Barbour, £24,620 from SERC (lattice gauge theory studies); Mr D. MacLennan, £19,500 from Scottish Development Department (assessment of sheltered and amenity housing for the elderly); Dr D. J. Platt, £26,143 from Scottish Home and Health department (investigation of plasmid dynamics and role of cryptic plasmids in dissemination and maintenance of antibiotic resistance among enterobacteria); Dr R. E. E. Leake, £36,000 from Scottish Home and Health Department (steroid receptor assays in therapy or breast cancer and influence of methodological developments); Professor A. J. Fielder, Dr G. J. McInnes, Dr T. S. Murray and Professor J. L. Reid, £115,438 from Scottish Home and Health Department (process, outcome and cost-effectiveness of shared care for hypertensive patients in inner city communities); Dr G. H. Clements, £32,021 from Scottish Hospitals Endowments Research Trust (rapid detection of cytomegalovirus infections in renal transplantation patients); Dr J. W. Cuthbert, £26,540

Universities continued

University of Surrey
Department of Microbiology

TEMPORARY LECTURER IN BACTERIOLOGY
(Two-year appointment)

The Department of Microbiology wishes to appoint a temporary Lecturer to teach general and systematic bacteriology, and public health microbiology. The appointment will be from 1 September 1985 until 31 August 1987.

The person appointed will be required to teach first degree undergraduate and postgraduate M.Sc. students, she/he will be appointed to assume responsibility for the supervision of existing research projects in the fields of water pollution and/or the control of water-rained diseases. The successful candidate will have a good general knowledge of microbiology and at least 3 years postgraduate research experience in medical and/or environmental microbiology.

Salary will be in the range £7,320 - £11,985 per annum (under review), according to age, qualifications and experience. Superannuation under USS conditions.

Further particulars are available from the Academic Registrar (AA), University of Surrey, Guildford, Surrey GU2 5XH, or Tel: Guildford (0483) 571281, Ext. 633. Applications from men and women, in the form of a curriculum vitae, including the names and addresses of three referees, should be sent to the same address by 30 August 1985 quoting the reference 417/THES. (51536)H1

The Open University

HALF-TIME POST OF SENIOR COUNSELLOR WEST MIDLANDS REGION

A vacancy has arisen, from 1st September 1985, for a half-time post of Senior Counsellor in the West Midlands region. The post will be based at the West Midlands Regional Headquarters, which is located at 66 High Street, Harborne, Birmingham B17 9NB.

Senior Counsellors are normally graduates with recent current experience within the broad field of adult, further or higher education. The post requires a person who is interested in the development and analysis of support services for the adult learner, particularly in the context of the multi-media teaching system of the Open University. A concern for academic communication and the administrative processes which make this effective for the students, are clearly of prime importance.

The appointment will be made (pro rata) on the lecturer scale £7,080 - £14,025 (under review).

Application forms and further particulars may be obtained from: Regional Academic Director, The Open University, W. Walton Hall, Milton Keynes MK7 6AA, or Tel: Milton Keynes (0908) 653393; there is a 24 hour answering service on 653868.

Closing date for application: 19th August. (51535) H1

University of Warwick

LECTURESHIPS IN MATHEMATICS

Applications are invited for two Lectureships in the field of Applied Mathematics in the Department of Mathematics (one temporary appointment, for one year, from October 1986, and one permanent appointment from October 1986).

Preference will be given to applicants with research interests in the areas of Partial Differential Equations, Control Theory or Numerical Analysis. Candidates should indicate whether they are interested primarily in the temporary or the permanent appointment. The successful candidate for the temporary position may be considered for the permanent lectureship.

Initial salary up to £10,760 p.a. on the Lecturer scale: £7,290 - £14,925 p.a. (under review).

Further particulars and application forms from The Registrar, University of Warwick, Coventry CV4 7AL, quoting Ref. S1/AA/Math, and dated 16th August 1985. (51508) H1

Personal

IMMEDIATE ADVANCES £100 to £50,000. Written terms on request. Regional Trust Ltd., 51 Dover St., Piccadilly, London W1X 4HQ. Phone 01-491 2934 or 4883416 (24hrs).

LOANS TO SALARIED WOMEN from £50 granted same day. Salaried Women's Loans Ltd., 229 Regent St., W1. For written details apply 01-734 1784. (71103) H21

National University of Lesotho

LECTURER/ SENIOR LECTURER IN PHYSICS
(with specialisation in Electronics)

Applications are invited from suitably qualified persons for the above post.

Qualifications: At least a Master's degree in Physics with specialisation in Electronics. Preference will be given to candidates with Ph.D. in electronics and with teaching experience at undergraduate level. The successful applicant will be expected to take up duty in the first week of January 1986.

Salary Scales: Lecturer: M12,504 - M17,064, Senior Lecturer: M15,864 - M20,328 (entry point according to qualifications and experience).

Superannuation: Appointees on short contract terms receive 25% gratuity for first two years of the contract rising to 27½% and 30% for each subsequent and similar period of service. Non-contributory pension scheme for appointees on permanent terms of service.

Accommodation is available at reasonable rentals. Passages to and from entitlement at first appointment and on normal termination for appointees, wife and dependent children under the age of 21. Education allowance for expatriates. Vacation and study leave.

Detailed applications, including full curriculum vitae, naming three referees, with addresses, should be sent to the Senior Assistant Registrar (Appointments), National University of Lesotho, P.O. Roma 180, Lesotho. Applicants resident in the U.K. should also send a copy of their application to the Secretary General, Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF. Further information may be obtained from either office.

Closing date for applications is 31 August 1985. (51535)H1

University of Surrey
Department of Music

LECTURER IN ACOUSTICS & RECORDING

Applications are invited for the above post, which will be operative from 1 January 1986.

The successful candidate will be primarily responsible for the teaching of Acoustics - both introductory and more technical - and will also be required to assist in the supervision of the Department's activities in Sound recording. Strong research interests will be expected and encouraged. A scientific qualification is essential. Experience in electronics and/or electro-acoustic music would be an added advantage.

Salary will be in the range £7,320 - £14,925 per annum (under review), according to age, qualifications and experience. Superannuation under USS conditions.

Further particulars are available from the Academic Registrar (AA), University of Surrey, Guildford, Surrey GU2 5XH, or Tel: Guildford (0483) 571281, Ext. 633. Applications from men and women, in the form of a curriculum vitae, giving details of qualifications and experience, including publications and awards, and studio work, and including the names and addresses of three referees, should be sent to the same address by 30 August 1985 quoting the reference 418/THES. (51509) H1

University of Essex
Department of Biology

LECTURER IN MOLECULAR BIOLOGY/ MOLECULAR GENETICS

Applications are invited for a Lectureship in the Department of Biology from 1 January 1986 or such other date as may be arranged.

The Department of Biology is expanding its research in the area of cloning and recombinant DNA technology and the person appointed will be expected to have interests in molecular aspects of genetics. Preference may be given to applicants whose research concerns eukaryotic cellular systems or plant cells.

The appointment is on the salary scale £7,320 to £14,925 per annum under review).

Informal enquiries about the post and the Department's facilities may be made to Professor J.G.M. Shiro (0206 863986, Ext. 2465).

Applications (ten copies), including a curriculum vitae and the names and addresses of two referees, should reach The Registrar (L327/THES), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further details may be obtained, by 30 August 1985. (51331) H1

University of Glasgow
Careers and Appointments Service

APPOINTMENTS OFFICER

Applications are invited for the post of Appointments Officer, for a fixed term of five years from 1st January 1986. Candidates should be graduates, preferably with training in or experience of careers advisory work and experience in industry, commerce or related fields.

The post is to give full vocational guidance for undergraduates and graduates in chemistry, biological and agricultural sciences and geology.

The Service is responsible for giving careers advice and information to students and graduates of the University, for assisting them to obtain suitable appointments or places on courses for post-graduate training and for maintaining contacts with University staff and with external bodies such as employers and relevant training establishments.

Salary will be within the range £11,475 - £14,925 (under review) on Grade II of the salary scales for Administrative Staff, with placement according to qualifications and experience.

Further particulars may be obtained from the Academic Personnel Officer, University of Glasgow G12 8QQ, where applications (6 copies), giving the names and addresses of three referees, should be lodged on or before 28th August, 1985.

In reply please quote Ref. No. 5532F. (51511) H1

Fellowships

The London School of Economics and Political Science

THE MORRIS GINSBERG FELLOWSHIP IN SOCIOLOGY

Applications are invited for the Morris Ginsberg Fellowship in Sociology. The purpose of the Fellowship is to promote Research in Sociology. It may be held, at the discretion of the Committee of Management, with other offices, appointments or awards, for tenure by a University Teacher who might combine it with sabbatical or study leave. The period of an award may be up to twelve months but should not be taken in one term. It may be held at any time within the next two years.

Application forms, available on receipt of a stamped addressed envelope, from the Administrative Officer, Room 1S15, London School of Economics and Political Science, Houghton Street, London WC2A 2AE.

Closing date for applications: 23 August 1985. (51532) H2

Kingston Polytechnic

School of Mechanical, Aeronautical and Production Engineering

RESEARCH FELLOW

Research funding has been obtained from SERC to appoint a Research Fellow to carry out a technical appraisal of a modern Aerospace Factory with a view to considering diversification of production and to consider suitable alternative products. The successful applicant would be expected to hold a degree in a suitable discipline; experience of working with unions and management will be highly regarded so applicants without formal qualifications will be considered.

The appointment is for 9 months and the salary would be in the range £7,848 - £10,551 p.a. inclusive.

Further details and application forms from Staffing Officer, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames, Surrey KT1 2EE. Tel: 01-549 1366, Ext. 2808. Closing date 9 August 1985. (51519) H3

University of Strathclyde
Department of Politics

RESEARCH FELLOW

Applications are invited for the post of Research Fellow tenable until 30 April 1988 in the first instance, to work with the Community Council Resource Centre. This Centre is administered by the University on behalf of the Glasgow District Council. The successful applicant will be responsible for the development of the work of the Community Councils and for the co-ordination of the team.

Salary on Range 1A: £7,320 - £19,150 per annum. USS benefits.

Applications with full curriculum vitae (quote Ref: R47/85) and the names and addresses of two referees should be sent to Staff Office, McCance Building, University of Strathclyde, 16 Richmond Street, Glasgow G1 1XQ.

Closing date for applications: 16 August 1985.

Fellowships continued

OXFORD CENTRE FOR POSTGRADUATE HEBREW STUDIES

The Oxford Centre for postgraduate Hebrew Studies is offering one Fellowship and two Junior Fellowships for scholarly research and teaching in the field of relationships between Jews and non-Jews in the following areas:

(1) Jewish/Christian Relations in the Early Centuries;
(2) Jewish/Muslim Relations in the Medieval Period;
(3) The Roots of Modern Anti-semitism.

The fellowship may be in any of the three areas, although preference may be given to (1). The Fellowship will be initially for a period of five years, renewable with the possibility of eventual appointment to retiring age, and it will correspond to the university lecturers scale, at present £7,520–£15,930.

The Junior Fellowships will each initially be for three years, renewable, and the stipend will be £7,000 rising to £8,000. For the initial period (1) may be associated with a Senior Research Fellowship or Junior Research Fellowship at St. Cross College, (2) with a Research Fellowship or Junior Research Fellowship at Wolfson College, and (3) with a Junior Research Fellowship at St. Antony's College. The successful candidates should take up these Fellowships by 1 January 1986 or as soon as possible thereafter, and not later than 1 October 1986.

Further particulars can be obtained from the Administrative Secretary, Oxford Centre for Postgraduate Hebrew Studies, 45 St. Giles, Oxford OX1 3LP. Applications, together with three academic references, must be received by 15 October 1985. (0206838)

University of Leicester

Centre for the Study of Social and Individual Values

This new centre for research in and dissemination wishes to appoint for three years:

A RESEARCH FELLOW
(Scale RA1B, £11,305 - £14,925 (under review))

Qualified in social psychology or sociology, capable of independent research, involving statistical techniques and analysis, into Values and the Voluntary Sector.

A RESEARCH ASSOCIATE
(Scale RA1A, £7,320 - £13,150 (under review))

Qualified in philosophy and/or social policy, to assist in a conservative study of professional ethics.

Relevant practical experience would be an advantage in both posts.

Further particulars and application forms obtainable from Professor Noel Timms, Chairman of the Centre, 107 Princess Road East, Leicester LE1 7LA.

Closing date: 23 August 1985. (51396) H2

Holidays and Accommodation

ORISCOLL HOUSE HOTEL 300 single rooms, 150 superb Tyrolean period board. Apply 193/201 Kent Road, London SE1 4YT. Tel: (01) 703 4175. (52156) H35

Polytechnics

Administrator
Modular Scheme
£12,900 – £13,983pa inc

Middlesex Polytechnic's Modular Scheme is one of the largest of its kind in the United Kingdom.

The administrator is the senior member of non-teaching staff in the scheme, responsible for a team of non-teaching staff and involved in developing and implementing policy.

Honours graduate status and a proven record of administrative/managerial achievement are expected. Creative and analytical skills and experience in staff management and a flexible approach are essential qualities.

Write enclosing s.a.e. (min. 9in. x 4in.) and quoting ref E124B for further details and an application form: Personnel Office, Middlesex Polytechnic, 114 Chase Side, London N14 5PN. Closing date 12 August.

Middlesex Polytechnic

PLEASE MENTION
THE T.H.E.S.
WHEN REPLYING TO ADVERTISEMENTS

Colleges and Departments of Art

Surrey County Council West Surrey College of Art and Design

Foundation Studies

TEMPORARY LECTURER II IN DESIGN STUDIES
(A one-year half-time appointment)

To assist in teaching Design to Foundation studies.

If possible, the appointment will be from September 1985.

Applicants with experience of design practice and teaching are preferred. The ability to offer Design Studies via a process such as printmaking is an advantage.

Application forms, which should be returned by 23rd August, and further particulars from the Registrar, West Surrey College of Art and Design, Falkner Road, The Hart, Farnham, Surrey GU9 7DS. (51514) H10

All advertisements are subject to the conditions of acceptance of Times Newspapers Ltd, copies of which are available on request.

Polytechnics continued

TEESSIDE POLYTECHNIC
Department of Management Studies – Flatts Lane Centre

Applications are invited for the following 2 posts:

LECTURER II or SENIOR LECTURER IN MARKETING

Candidates should have at least relevant first degree or equivalent professional qualification and experience of teaching and practising marketing.

Salary: £7,546–£11,176 (under review) – £13,128 (work based) per annum.

An appointment may be made at other Lecturer II or Senior Lecturer level but the maximum salary for appointment will be £13,128 per annum.

LECTURER II/SENIOR LECTURER IN INDUSTRIAL RELATIONS/PERSONNEL MANAGEMENT

Applications are invited from graduates with relevant postgraduate qualifications and/or professional qualifications and appropriate organisational experience.

Applicants should be specialists in Industrial Relations. An ability to offer Personnel Management and/or Training and Development would be an advantage.

The successful candidate will be a member of a group teaching in personnel management and related areas at a variety of degree, professional and post experience courses.

Salary: An appointment will be made at Lecturer II level and the maximum salary at appointment will be £12,099 per annum.

Application forms and further particulars from the Personnel Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA, Telephone 0642 218121, Extension 4181.

Closing date for application in respect of both posts: 9 August 1985. (0206)

Polytechnic of Central London

Faculty of Social Science and Business Studies

TEMPORARY LECTURER 2 IN POLITICS

Applications are invited for a post of Lecturer 2 in Politics tenable from October 1985 until 30 June 1986. The post is limited to the period of study leave of a person who will be away from the Polytechnic and American politics to degree level.

Salary (under review) £8,586 – £13,128 inclusive of London Allowance.

Further particulars of the post are available from the Personnel Officer, 9 Poland Street, London W1A 1AA, to whom applications must be made by 16 August 1985.

PCL IS AN EQUAL OPPORTUNITIES EMPLOYER (51546) H

Bristol Polytechnic
Department of Humanities

LECTURER II/ SENIOR LECTURER IN MODERN ECONOMIC HISTORY

Applications are invited for the above post to teach courses in modern economic history (1750) at honours degree level. Candidates should have a first honours degree and research interests in economic history; business history would be an asset although applicants with other interests will be considered.

Honours graduate status and a proven record of administrative/managerial achievement are expected. Creative and analytical skills and experience in staff management and a flexible approach are essential qualities.

Write enclosing s.a.e. (min. 9in. x 4in.) and quoting ref E124B for further details and an application form: Personnel Office, Middlesex Polytechnic, 114 Chase Side, London N14 5PN. Closing date 12 August.

Middlesex Polytechnic

PLEASE MENTION
THE T.H.E.S.
WHEN REPLYING TO ADVERTISEMENTS

Polytechnics continued

LANCASHIRE POLYTECHNIC AT PRESTON

Faculty of Business and Management

LECTURER II in FOREIGN LANGUAGES
(Limited Term Contract, 1st September 1985 to 30th April 1986)
(Ref. AA/282)

To teach mainly German with some French on a variety of courses throughout the Polytechnic but especially for BTEC and Bilingual Secretary Diploma examination.

School of Economics
LECTURER II/ SENIOR LECTURER in BUSINESS/ MANAGERIAL ECONOMICS
(Ref. AA/283)

Applicants should be capable of teaching business or managerial economics to degree level and should have experience of the operations of business organisations.

Faculty of Science

School of Mathematics and Statistics
LECTURER II in MATHEMATICS AND STATISTICS
(re-advertisement - Previous applicants will be re-considered)
(Ref. AA/224)

The successful candidate is likely to have a research and/or industrial background and, whilst some experience of teaching mathematics to engineers would be an advantage, the major requirement will be a commitment to the development of this relatively new School.

School of Physics Astronomy
LECTURER II in PHYSICS and ASTRONOMY
(Limited Term Contract for one year commencing 1st September 1985)
(Ref. AA/285)

Applicants should have at least a good honours degree in Physics and an interest in teaching on a wide range of degree and HND Courses.

School of Psychology
LECTURER II in PSYCHOLOGY
(Limited Term Contract for one year commencing 1st September 1985)
(Ref. AA/286)

The successful applicant will be expected to teach introductory level courses in the field of Human Experimental Psychology and advanced courses in Human Performance.

Preliminary enquiries may be made to the Head of School, Dr. D. Muller, Tel. (0772) 22141 extension 2100

Faculty of Technology

School of Construction and Surveying
LECTURER II/SENIOR LECTURER in BUILDING SERVICES ENGINEERING
(Ref. AA/287)

A suitable Building Services Engineer is required to teach Engineering Services and Environmental Science at degree and sub-degree level.

LECTURER II/SENIOR LECTURER in BUILDING TECHNOLOGY/MANAGEMENT
(Ref. AA/288)

A graduate member of the Chartered Institute of Building is required to teach Building Technology and Management at degree and sub-degree level.

LECTURER II/SENIOR LECTURER in BUILDING SURVEYING
(Ref. AA/289)

Further particulars may be made to the Acting Head of School, Mr. W.H. Roberts Tel. (0772) 22141 extension 2165 or to Mr. R. Barham extension 2151.

Salary Scales: Senior Lecturer: £11,176 to £13,128 (Bar) to £14,061 (under review) Lecturer II: £7,548 to £12,099

Application forms and further details obtainable from the Personnel Office, Lancashire Polytechnic, Preston, PR1 2TQ, Tel. (0772) 202027 quoting the appropriate reference number.

Closing date: 23rd August 1985. (0206831)

LANCASHIRE POLYTECHNIC AT PRESTON

KINGSTON POLYTECHNIC
FACULTY OF BUSINESS & SOCIAL SCIENCE
School of Operations Management and Quantitative Methods

Lecturer II/Senior Lecturer in QUANTITATIVE METHODS
Salary £8,226–£14,739 including London allowance

We are seeking to appoint a lecturer to teach quantitative techniques in the context of business and management courses. Familiarity with applications in addition to a sound theoretical basis is essential. Computing is an integral part of all courses and applicants should have experiences in computing technology and the use of applications packages. If broader information technology experience can also be offered it would be an advantage.

Further details and application forms from Personnel Office, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-549 1366 ext 287.

Closing date: 23rd August 1985 (0206821)

NAPIER COLLEGE
A Scottish Central Institution
DEPARTMENT OF MATHEMATICS

SENIOR LECTURER 'A'/ LECTURER 'A' IN MATHEMATICS
Salary Senior Lecturer 'A'
£12,770–£14,184 (Bar) – £16,104
Lecturer 'A' £8,688–£12,777 (Bar) – £13,716

Applications are invited for the above post from persons who have teaching/research interests in the applications or mathematics or statistics in engineering.

Applicants should have an honours degree and preferably a higher degree, and should also have recent research, consulting or industrial experience in the application of mathematics or statistics to the solution of engineering problems.

DEPARTMENT OF COMPUTER STUDIES

LECTURER 'A' IN COMPUTER STUDIES (2 POSTS)
Salary £8,688 – £12,777 (Bar) – £13,716

Applications are invited for the above posts to teach on courses including the BSc Computing and Data Processing, Post Graduate and Higher Diploma and other courses leading to professional qualifications. Applicants should demonstrate interest in subjects such as advanced information technology, database systems, programming methodologies, computer systems design or distributed systems.

Whilst industrial or commercial experience will be an advantage, consideration will be given to recently qualified graduates in an appropriate discipline who wish to fulfil the general requirement of an active interest in research and consultancy in relevant subject areas.

Applicants should possess an honours degree or equivalent professional qualification. Full membership of the British Computer Society, together with good basis qualifications, may also be acceptable.

Application form and further particulars from:
Administrative Officer (Personnel)
Napier College
219 Colinton Road
EDINBURGH
Telephone No: 031-447 7070, Ext 274 (0206811)

Manchester Polytechnic
Department of Chemistry

LECTURER II IN ORGANIC CHEMISTRY

The successful candidate will be expected to contribute to the general teaching of organic chemistry at degree and other levels, to develop and to engage actively in research in a relevant area. Experience in organic synthesis, biotechnology, industrial chemistry, or information technology would be an advantage. Ref T/747

TEMPORARY LECTURER II IN PHYSICAL CHEMISTRY (1 Year)

Candidates should be prepared to teach physical chemistry to higher technician and degree courses. Ref T/748

Department of Metallurgy

TEMPORARY LECTURER II METALLURGY (1 Year)

Applicants should be prepared to teach some or all of the following subjects: materials science, materials testing, manufacturing processes, quality control, metallurgical chemistry at degree and higher technician level. Ref. T/749

Salary scale £7548–£13099 under review.

For further particulars and application forms (return before 30 August 1985) send a self addressed envelope, quoting the appropriate reference number to the Secretary, Manchester Polytechnic, All Saints, Manchester M15 6BH.

Manchester Polytechnic is an equal opportunities employer. (51543) H3

Huddersfield Polytechnic
Department of Engineering Systems

LECTURER II/ SENIOR LECTURER
ACA 600

Salary: £6,411–175 - £13,128 (Bar) – £14,061 Lit £7,548 - £16,099

Applications are invited from graduates with relevant Industrial/Research experience in the fields of Information Technology and Industrial Systems Engineering. Candidates are orientated - eg Computer Systems Architecture, Digital Electronics, Microprocessors and Interfacing, Industrial Computer Applications, Computer Based Instrumentation and Control Systems. In addition to lecturing on relevant BTEC and Degree courses the successful applicant will be encouraged to collaborate with local industry on a Teaching Company Scheme.

Department of Economics & Marketing Studies

RESEARCH ASSISTANT
Fixed term contract: Two years
R 67

Salary: £5,181 - £5,910 (under review) Researcher 'A' Scale

Applications are invited from graduates with a good honours degree in a relevant business discipline for a two year appointment to conduct research on the strategy of structure of the UK textile and Engineering industries 1975 - 85. The Research Assistant will be expected to register for a research degree of CNAA.

Application forms & further details from the Personnel Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH. Tel: (0484) 22488 and should be returned to that office by 16 August, 1985. Please send S.A.E. (51530) H3

The Polytechnic of North London
Faculty of Social Studies

Applications are invited for the following research posts in the Faculty of Social Studies.

R16 Department of Law

A RESEARCH ASSISTANT

For a project evaluating legal education by reference to the later careers of law graduates. Applicants should also be prepared to teach legal subjects for up to six hours a week. Applicants should be graduates in law, with some research experience and preferably with knowledge of social research methods. The post is for one year in the first instance.

R18 Departments of Sociology and Applied Social Studies

A RESEARCH ASSISTANT

Who should be a qualified and experienced fieldworker, to participate in an existing project on alcohol advice agencies. Applicants should have a good social science degree and be prepared to do some travelling.

R18 (a)

A RESEARCH ASSISTANT

To carry out an investigation into the impact of social policy on the position of women in the EEC countries. Social Science background and competence in one or more European languages preferred.

Salary: £5,181 - £7,176 plus L.A. £1,038.

Application form obtainable from the Personnel Officer, Polytechnic of North London, Holloway Road, London N7. Tel: 607 2789.

Closing date for the receipt of applications 14 days from the appearance of this advertisement.

The Polytechnic of North London is an Equal Opportunities Employer. (51523) H3

Bristol Polytechnic
Department of Humanities

ASSOCIATE LECTURER (0.5) IN HISTORY

Temporary for one year from 1 September 1985 to 31 August 1986.

Applications are invited for the above post primarily to teach Economic and Seventeenth Century European History in the B.Ed. (Hons) degree and also to assist with the first year course which covers Europe since 1870 in the B.A. (Hons) Modern Languages degree. A good honours degree in appointed and candidates should have a research interests in an appropriate field of early modern history.

Salary Scale: Lit 50% of £7,548 - £11,175 (bar) - £16,099 per annum; SL 50% of £7,175 - £13,128 (bar) - £14,061 per annum.

The appointment will be made on the appropriate scale according to relevant previous service/experience. (Progression from the Lit scale to the SL scale is in accordance with the provisions of the Burnham Further Education Report).

For further details and an application form to be completed before 16 August 1985, please contact the Personnel Office, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol or ring Bristol 656261. Ext. 216 or 217.

Please quote Reference Number L/81 in all communications.

Avon County Council is an Equal Opportunities Employer. (51528) H3

Thames Polytechnic
School of Chemistry

TEMPORARY LECTURER II INORGANIC/ ANALYTICAL CHEMISTRY

Well qualified candidates should have a broad knowledge of inorganic chemistry and the ability to teach main group and solid state chemistry to both undergraduates and postgraduates will be an advantage. Research and consultancy potential is important. The appointment will initially be for two years with a possible extension to a third year.

TEMPORARY LECTURESHIP IN ECONOMICS

School of Social Sciences

Applications are invited from suitably qualified persons for a temporary (one year) post of Lecturer in Economics with a particular interest in teaching Quantitative Economics. A postgraduate qualification in Econometrics or Microeconomics with strong quantitative background is desirable. In addition applicants should be able to teach introductory computing. The successful applicant will be expected to commence in either October 1985 or January 1986.

Salary scale £8,586 - £13,157.

Further particulars and application form from the Staffing Officer, Thames Polytechnic, Wellington Street, London SE18 6PF, to be returned by 3 September 1985.

Thames Polytechnic is an equal opportunities employer. (51522) H3

The Hatfield Polytechnic
School of Business & Social Sciences

LECTURER II/ SENIOR LECTURESHIPS SOCIOLOGY (TEMPORARY APPOINTMENT)

The School invites applications for two 0.7 fractional appointments which will be paid pro-rata and will be for at least two years from 1 October 1985 - alternatively a full-time temporary appointment is considered.

Staff appointed to the post(s) will be required to combine teaching and administrative duties and to contribute to the research work of the School.

Special teaching interest and qualifications in two of the following areas would be an advantage: Industrial Sociology, Social Implications of Science and Technology, Communication and Culture, Sociology of Education, Race and Ethnic Relations, Sexual Divisions, Urban and Rural Sociology. It is also expected that applicants can contribute to the teaching of introductory Sociology.

The person(s) appointed will be placed on an appropriate point on the Lecturer II/Senior Lecturer Scale. Lit: £7,813 - £11,459 - £11,634. SL: £11,459 - £14,385.

Application forms and further details from the Staffing Office, The Hatfield Polytechnic, PO Box 109, Hatfield, Herts AL10 9AB. Tel: Hatfield (07072) 68282.

Please quote reference: 980. Closing date: 16 August 1985. (51513) H3

Courses

UWIST
University of Wales

A DEGREE COURSE IN ENGINEERING PRODUCTION AND PRODUCTION MANAGEMENT

This is a new course designed to provide a fundamental training for students who are planning a career in the application of management science and manufacturing technologies to business and industry. The course is heavily biased towards the use of computer hardware and software for industrial problem solving.

Two degree schemes are available. A three year B Eng degree or a four year B Eng(Tech) integrated sandwich course. The four year integrated sandwich course includes a minimum of fifteen months of attachment to industry for practical training and professional experience.

Although the first two academic years of the new course are common with the existing B Eng/G Eng(Tech) Engineering Production courses, the final year offers an opportunity to study in depth subjects related to management science, viz. marketing, business policy etc.

Further details can be obtained from: Academic Registry, UWIST, PO Box 68, Cardiff CF1 3XA. Tel: Cardiff (0222) 42288)

FOR DETAILS OF ADVERTISING IN THE T.H.E.S. PLEASE RING SUE PEPLOW 0-253 3000 EXTN. 226

Colleges and Institutes of Higher Education

Roehampton Institute Digby Stuart Froebel Southlands Whitelands

HALF-TIME LECTURESHIP IN NUTRITION

Required for Home Economics Department from 1st October 1985 or earlier if possible. Applicants should be well qualified academically in Human Nutrition and have relevant industrial and/or teaching experience. An interest in research would be an advantage.

Salary (LI/SL) £3,774 to £7,030 plus London Allowance £519; pay award pending.

Application forms and further particulars may be obtained by writing to Mr R. A. Fennell, Assistant Secretary, Roehampton Institute of Higher Education, Digby Stuart College, Roehampton Lane, London SW15 5PH. Closing date: Friday, 23rd August 1985.

(020834)

HEAD OF COMPUTER SCIENCE

LONDON INTERNATIONAL COLLEGE

67–83 Seven Sisters Road, London N7 6BU

The college urgently requires a qualified and experienced teacher of computer science to take over this large and expanding department.

Salary up to £14,000.

Contact Dr. J. P. Harris on 01-263 9729 or at above address without delay.

(020824)

SOUTHAMPTON INSTITUTE OF HIGHER EDUCATION

Department of Public and Applied Social Administration

LECTURER II COMMUNICATIONS AND GENERAL STUDIES

Applications are invited for the above post from 1st September, 1985 or as soon as possible thereafter. The Department seeks an Honours graduate with a teaching qualification and teaching experience in Further/Higher Education. Experience in the Public Sector, community/industry would be an advantage. The successful applicant will provide Communications and General Studies servicing particularly for B/TEC courses.

Salary Scale: LII £7,548–£12,069 (pay award pending). (On the current level of work it is expected that this post would progress to the Senior Lecturer Scale.)

Further details and application forms are available from the Personnel Officer, Southampton Institute of Higher Education, East Park Terrace, Southampton, Hants, SO9 4WW. Tel: (0703) 229381, Ext. 312.

Closing date: 19th August, 1985.

(020835)

DORSET INSTITUTE OF HIGHER EDUCATION

HEAD OF DEPARTMENT OF COMMUNICATION AND MEDIA

Grade VI: £17,397–£19,170 (under review)

Further details and application form from: Mrs E. Dommett (ref. THES 26), Room A30, Dorset Institute of Higher Education, Wallisdown, Poole, Dorset BH12 5BB. Tel: (0202) 524111, Ext. 309.

(020822)

Administration

TEESSIDE POLYTECHNIC

Courses Officer (P.CC.03)

Scale 5/6 £7,524 – £9,114 (under review)

Applications are invited from persons seeking a responsible post at the heart of academic administration. The successful candidate will be expected to hold a suitable qualification (degree and/or professional) and will have completed at least two years' work experience, preferably in the public sector.

We are seeking a highly motivated person, who can work under pressure and yet have the cheerful approach essential to the well-being of any organisation.

If you feel you can meet our requirements, write or phone for an application form and further particulars to:-

Personnel Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland Tel: 0642-218121 Ext 4114

Closing date for applications: 16 August 1985.

Cleveland County Council is an equal opportunity employer.

(020825)

Research and Studentships

University of Bradford

SERC SPINKS STUDENTSHIP IN BIOTECHNOLOGY.

Applications are invited from graduates with a good honours degree in Biochemical Engineering or Applied Microbiology for a studentship available from October, 1985 leading to a Ph.D. The research into the effects of shear and turbulence on micro-organism behaviour will be carried out in close collaboration with John Brown Engineers and Constructors Ltd. and will provide insight into the economic and technical policy making decisions of the company. The SERC studentship is supplemented by an additional £1,500 p.a.

Applications and enquiries to Dr J Ingham or Professor M F Edwards, Chemical Engineering, University of Bradford, West Yorkshire, BD7 1DP. Tel: 0274 733466 Ext. 386/377.

(020829)

UWIST

University of Wales

CIVIL ENGINEERING AND BUILDING TECHNOLOGY.

Research Assistant

(Fixed term 1 year).

With a good Honours Degree in a numerate discipline to work under a contract with Transport and Road Research Laboratory involving the study of accidents at pedestrian crossings.

Salary within range 1B Research and Analogous Staff: £6,600 – £9,920 p.a. (under review).

Requests (quoting ref: C86) for details and application form to: Staffing Office, UWIST, PO Box 98, Cardiff, CF1 3XA. Closing date: 16th August 1985.

(020863)

University of London

School Examinations Board

RESEARCH OFFICER

The School Examinations Board invites applications from graduates (any discipline but with good working knowledge of Statistics) who have had experience of analysing data preferably in an educational situation. Applicants must have had experience in one or more of the following: teaching, education administration, examination work and knowledge of some of the following: assessment techniques, curriculum development in schools, educational research methods, computer-programming. Duties of the post include carrying out investigations into aspects of school examinations.

Appointment will be within Grade II of the National Structure for University Administrative Staff. Starting on appointment will be at a point on the scale £11,673 to £14,985 per annum (under review) plus £1,953 London Allowance. Six weeks holiday plus Public Holidays and privilege days. Membership of the Universities Superannuation Scheme.

Further particulars and application forms may be obtained from the Assistant Personnel Officer (SES), Senate House, 32 Russell Square, London WC1B 5DAN Tel: 01-636 8000; Ext. 4584 to whom completed applications should be returned no later than 16 August 1985.

(020826)

Research and Studentships continued

UNIVERSITY OF KENT AT CANTERBURY

Electronics Laboratory

SERC CASE Studentship

Applications are invited for an SERC CASE studentship which is available at the Electronics Laboratory, The University, Canterbury, Kent. Applicants should normally possess an Upper Second Class Honours degree in Electronics or related subject. The studentship, which is for three years, is linked with the Philips Research Laboratories, Redhill and is partly funded by them. The project is involved with Non-Ferrite FET circulators for S-Band Radar.

Interested persons should apply to the Assistant Registrar, Faculty of Natural Sciences, Chemical Laboratory, The University, CANTERBURY, Kent CT2 7NH by 30 August 1985. Please quote ref PG20/85/THES.

(20862)

University of Surrey

Department of Civil Engineering

POSTDOCTORAL RESEARCH FELLOW

Applications for the above post are invited from suitably qualified postgraduates, from any branch of Engineering, for a period of 3 years beginning October 1985. This SERC-funded research grant is for an experimental investigation of the complex flow regions found on multi-element high-lift aerofoils. The successful candidate will be required to work on:

1. developing a new technique for measuring the turbulent flow region.

2. writing software for automatic data acquisition and analysis.

3. applying the experimental data to current prediction methods.

Starting salary will be up to £8,450 p.a. (under review) on the Research & Analogous Staff scale according to age, qualifications and experience.

Applications (in the form of a curriculum vitae or copies) including the names and addresses of two referees should be sent to the Personnel Office (LL5), University of Surrey, Guildford, Surrey GU2 5XH, by 30 August 1985, quoting reference 132/THES. Informal enquiries may be made to Jim Ivy on (0483) 571281, Ext. 800, or (0483) 39103.

University of Glasgow

Social Paediatric & Obstetric Research Unit

RESEARCH ASSISTANT

Applications are invited to work on a single-blind trial of Evaluative Research of interventions in Child Abuse. The project will assess interventive strategies in endeavour to derive a model of present practice and will attempt to relate review to issues in contemporary practice in the field. The post will be appropriate for a recent graduate in Social Sciences and will be tenable for a period of 18 months. The salary will be on scale 1A of the Universities scales for Research Assistants, starting at £7,530 to £8,450 with annual supernumerary. Further particulars may be had from Mr David Gough, Senior Paediatric & Obstetric Research Unit, 64 Oakfield Avenue, Glasgow, G12 8LW. Telephone 041-339 8811. Applications (together with the names of three referees) should be sent to the same address before 23rd August 1985. (51542)

University of Glasgow

Department of Management Studies

FELLOWSHIP AND RESEARCH ASSISTANT IN SMALL BUSINESS

Applications are invited for 2 new posts in Small Business Management.

Responsibilities will include Programme Development, Research and Programme Management.

The initial appointments will be for two years with an early starting date.

Applications should include c.v., plus 2 referees. All applications should be submitted by Friday, 16th August.

Salary: £7,580 - £12,150.

Further information may be obtained from Sylvia Kerrigan, Department of Management Studies, University of Glasgow, 65 Bute Gardens, Glasgow G12 8RT. Tel: 041-339 8855, Ext. 7412.

(51516) H12

University of Glasgow

Department of Mathematics

Applications are invited for

THREE-YEAR POSTDOCTORAL RESEARCH ASSISTANTSHIP

supported by the S.E.R.C., to begin on 1st October, 1985 or soon thereafter. The appointee will work with Dr N.J. Young on a project entitled 'Numerical Methods for Minimax Norm Interpolation by Analytic Matrix Functions'. Candidates should have or expect soon to have a Ph.D. in a relevant branch of Mathematics or Engineering.

The initial salary will be £7,530 or £7,980 on the 1A scale for Research and Analogous staff (under review).

Applications, including a curriculum vitae and the names and addresses of three referees, should be sent by 31st August, 1985, to Dr. N.J. Young, Department of Mathematics, University of Glasgow G12 8QQ, for whom further particulars of the project may be obtained.

University of Leeds

Centre for Television Research

Political Communication

Applications are invited for a post of

PREDOCTORAL RESEARCH ASSISTANT OR POST-DOCTORAL RESEARCH FELLOW

to form part of a Media Politics Group (supported by the Verulam Centre Metropolitan County Council and the Rowntree Trust). Depending on appointment will be available immediately for a fixed period of up to three years. There may be the possibility of further fixed-term contract thereafter. A programme of political communication research, locally and nationally will be undertaken for use in skills in the analysis of media organisations, media content and/or survey data will be appropriate. For appointment as Research Assistant candidates should have a postgraduate honours degree and at least one year's postgraduate research experience in a relevant subject. For appointment as Research Fellow a Ph.D. in a relevant subject area is required. Research Assistant and Research Fellow salary will be on the 1A range (£6,594 – £8,920) (under review) with an award follow on the IA Range (£7,530 – £12,150) (under review) for research and Analogous Staff, according to age, qualifications and experience.

Informal enquiries may be made to Professor J.G. Blumler (Tel: (0532) 431781, ext. 6435).

Application forms and further particulars may be obtained from the Registry, The University, Leeds LS2 9JT, quoting reference number 1185/B. Closing date for applications 23rd August 1985. (51525)

University of Bath

School of Electrical Engineering

Switched-mode Power Supplies

A RESEARCH OFFICER

is required for a project concerned with the analysis and design optimisation of switched-mode power supplies with special attention to the wound components. The work is to be carried out in co-operation with a major international producer of SMPS components.

Applicants should be postdoctoral or have equivalent research experience.

The appointment is for 2 years, starting salary up to £9,950 p.a. (under review).

Application forms and further details from the Personnel Officer, University of Bath BA2 7AY, quoting ref: 257/THES, closing date 19.8.85. (51517) H13

All advertisements are subject to the conditions of acceptance of Times Newspapers Ltd, copies of which are available on request.

Overseas

KENYATTA UNIVERSITY COLLEGE
Office of the Registrar

Applications are invited for the following posts:

1. PROFESSOR –
FINE ART DEPARTMENT – Ref: KAC/7/85/37
(Re-advertisement)

Applicants must have a good post-graduate degree in art with specialisation in at least three of the following: Painting, Graphics, Textiles, Ceramics, Sculpture, Art Education, Art History/Appreciation.

They must have considerable teaching experience at university level plus evidence of professional contribution to art through artistic production and/or publication. They must have ability to direct research, plan, initiate and execute new teaching programmes for both undergraduate and postgraduate students. The applicants should preferably have experience in running of a university department. Applications must include copies of certificates, testimonials and photographic samples of the candidate's original artwork.

2. SENIOR LECTURER –
LANGUAGES AND LINGUISTICS DEPARTMENT – Ref: KAC/7/85/38
(Re-advertisement)

Applicants should have Ph.D or its equivalent in Languages or General Linguistics plus considerable teaching evidenced by research and publications.

The successful candidate will be expected to teach General Linguistics and its application to either Swahili, English or French.

3. SENIOR LECTURER –
GEOGRAPHY DEPARTMENT – Ref: KAC/7/85/39

Applicants should have a Ph.D degree in Geography as well as University teaching and research experience.

The Department particularly wishes to recruit someone qualified to teach in the field of Human Geography (Rural and Urban Settlement) and the use of Statistical Methods in Geography, but qualified applicants from other branches of Geography will also be considered.

4. LECTURER (RESEARCH AND EVALUATION) – AFRICAN CURRICULUM ORGANISATION CENTRE –
Ref: KAC/7/85/40

Applicants should be holders of Ph.D degree in Social Sciences with specialisation in Research and Evaluation. They must have teaching and research experience in the field of Education.

The successful candidate will be required to teach both at the undergraduate and postgraduate levels as well as give guidance to students in the development of research programmes.

5. LECTURER (CURRICULUM IMPLEMENTATION) – AFRICAN CURRICULUM ORGANISATION CENTRE –
Ref: KAC/7/85/41

Applicants should be holders of Ph.D degree in the field of Education Management with specialisation in any of the following areas, Education Administration, Planning and/or Economics of Education. They must have teaching, research and/or work experience in the relevant area.

The successful candidate will be required to teach both at the undergraduate and postgraduate levels and to give guidance to students in the development of research programmes.

6. LECTURER (CURRICULUM DEVELOPMENT) – AFRICAN CURRICULUM ORGANISATION CENTRE –
Ref: KAC/7/85/42

Applicants should be holders of Ph.D in Science, Mathematics or Agriculture with a broad knowledge of Curriculum Development and must have teaching and research experience in Curriculum Development.

The successful candidate will be required to teach both at the undergraduate and postgraduate levels as well as to guide students in the development of research programmes.

7. ARCHIVIST –
LIBRARY DEPARTMENT – Ref: KAC/7/85/43
(Re-advertisement)

Applicants should be graduates of recognised universities and should also have a recognised professional archivist qualification. They should also have relevant experience in archival administration, development and records management, and be conversant with modern documentation and information retrieval techniques.

The successful applicant may be required to teach courses in Archive administration and record management. Teaching experience will therefore be an added advantage.

GAMES TUTOR –
PHYSICAL EDUCATION & GAMES DEPARTMENT – Ref: KAC/7/85/44

Candidates for this post should be qualified, experienced Physical Education teachers with at least a Bachelor's degree in sports or physical education.

They should have served in other large institutions for at least five years. They should also have a sound knowledge of modern coaching methods in various sports including athletics, swimming and games.

Preference will be given to candidates with a working experience of organisation of sports in a University or equivalent institution.

Terms of Service for all the above posts include membership of Senior Staff Superannuation Fund or FSSU and a non-contributory medical scheme, subsidised housing and/or a generous housing allowance.

Applicants from the United Kingdom may be eligible for British Government Supplementation Scheme which is tax exempt. The BESS Scheme is restricted to certain fields only.

Applications (6 copies) giving full details of age, marital status, educational qualifications, experience, present post, salary, copies of certificates, samples of selected publications (which must be enclosed) and names and addresses of three academic referees should be addressed to: The Registrar, Kenyatta University College, P.O. Box 43844, Nairobi, Kenya.

SALARY SCALES:

Professor –	KE5,940 x KE180–KE7,200 per annum.
Senior Lecturer –	KE3,750 x KE150–KE5,400 per annum.
Lecturer –	KE2,772 x KE108–KE3,204, KE3,330 x KE150–KE4,380 per annum.
Archivist –	KE2,772 x KE108–KE3,204, KE3,300 x KE150–KE4,350 per annum.
Games Tutor –	KE2,772 x KE108–KE3,204, KE3,300 x KE150–KE4,350 per annum.

(020818)

Posts Overseas

Ethiopia

Post 1: Professor/Associate Professor in Agricultural Economics
Post 2: Professor/Associate Professor in Animal Sciences
Post 3: Professor/Associate Professor in Crop Protection
College of Agriculture, Alemaya, Addis Ababa University

Duties: to teach both undergraduate and postgraduate students, up to 12 lectures per week, with some research.
Main courses taught are:
Post 1: project planning and analysis, agricultural development planning and policy, development economics.
Post 2: animal breeding, animal production technology, related courses.
Post 3: advanced crop protection, advanced plant diseases and pests, classification and identification of pests.
Qualifications: candidates should hold PhD and have relevant experience; those with MSc holding senior positions may be considered; no upper age limit; candidates must be UK citizens.
Salary: US$35,000 per annum, or its equivalent in local currency, tax free; if paid in local currency, up to 50 per cent of salary may be paid to a bank outside Ethiopia.
Benefits: rent free accommodation, airfares for employee and spouse at the beginning and end of a two-year contract, baggage allowance.
Contract: local contract with Addis Ababa University for two years, commencing October 1985 or as soon as possible thereafter.
Closing date for applications: 23 August 1985.
Reference: 85 A 39-41TH

For further details and an application form, please write, quoting the post reference number to: Overseas Educational Appointments Department, The British Council, 90-91 Tottenham Court Road, London W1P 0DT.

The British Council

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

CHAIR IN ISLAMIC STUDIES

Applications and recommendations are invited for the King Abdul Aziz Ibn Saud Chair in Islamic Studies. The search committee is seeking a senior scholar in a discipline of the humanities and/or social sciences with a distinguished record of research, professional activities, and teaching. The Chair carries with it a substantial endowment for research and teaching.

Applicants are invited from any discipline that deals with Islamic civilization: anthropology, art history, history, literature and language, philosophy, political science, religious studies, sociology and related fields.

Appointment to begin September, 1986. Rank and salary open. Application deadline: December 1, 1985.

Please send applications and nominations to the Search Committee, King Abdul Aziz Ibn Saud Chair in Islamic Studies, Office of the Chancellor, University of California, Santa Barbara, California 93106.

An Equal Opportunity/Affirmative Action Employer. (20860)

University of Cape Town

SCHOLARSHIPS FOR POSTGRADUATE STUDY AT UNIVERSITY OF CAPE TOWN IN 1986

The University of Cape Town offers the following scholarships to assist graduates of overseas universities in meeting the cost of postgraduate study at the University of Cape Town in 1986.

i) Overseas Students' Scholarships – for study in any field.

ii) J W Jagger Scholarships – for postgraduate study at Masters or Doctoral level. May be awarded to male graduates from Great Britain only.

iii) Wilfred Kramer Law Grants – for study in law.

Renewable scholarships are awarded annually under the above headings. Each scholarship includes a R1,500 Travel Grant and values will be not less than the following: Honours Study R5,600, Masters Study R6,000, Doctoral Study R5,500.

Application forms are available from: The Registrar, Research Administration Scholarships Office, The University of Cape Town, Private Bag, RONDEBOSCH 7700, South Africa.

Completed applications must reach the above address by 30 September 1985 for awards tenable during the academic year commencing January/February 1986. Candidates will be advised of the outcome of their applications at the end of November.

R14

REMINDER

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IN THE T.H.E.S. SHOULD ARRIVE NOT

LATER THAN 10AM MONDAY

PRECEEDING PUBLICATION

PLEASE MENTION THE T.H.E.S. WHEN REPLYING TO ADVERTISEMENTS

Industry and Commerce

The last thing we want you to do is just lecture

Electronics & Instrumentation

Anyone with sufficient knowledge is capable of delivering a nuts and bolts account of our product range, but here at Edwards High Vacuum, which is part of the BOC Group PLC, we don't think that would really do it justice. After all, you're looking at some of the worlds most advanced vacuum systems and instrumentation technology.

This is why we're looking for someone rather special to join our professional team at our Crawley based Training Centre. Someone who's a graduate, or of graduate calibre. In a relevant discipline: a good enthusiastic communicator with sound industrial experience who can absorb complex technical information about our entire product range, and present it in an interesting manner. You'll be demonstrating and lecturing to customers, prospective customers – so there is a sales role – Edwards employees and distributor sales staff.

At present you could be doing a similar job or you could be a technical college lecturer with commercial experience, or – and this is most likely – you'll be in the instrumentation field, with a deep knowledge of your subject and the desire to pass it on to others. Whatever your position now, we'll give you full product training to enable you to structure courses and establish the training function as a business in its own right. There's also some site training, which involves travel both in the UK and possibly overseas.

It's a challenge, and a very rewarding one at that – both in terms of job satisfaction and remuneration – with a salary of up to £12,000, and generous relocation assistance where necessary.

Call Don Phillips, Personnel Manager on (0293) 28844 or send a brief CV to me at: Edwards High Vacuum, Manor Royal, Crawley, W. Sussex RH10 2LW.

Edwards

THE NEW SOUTH WALES INSTITUTE OF TECHNOLOGY SYDNEY, AUSTRALIA

Equal Employment Opportunity is Institute Policy

SCHOOL OF CIVIL ENGINEERING

ASSOCIATE HEAD

The Schools of Civil Engineering, Electrical Engineering and Mechanical Engineering form the Faculty of Engineering. The School of Civil Engineering offers cooperative education undergraduate courses leading to degrees in Civil Engineering and in Structural Engineering; these are six-year courses undertaken on either a sandwich (6 months study 6 months work experience per year) or a part-time attendance pattern. The School also offers a Masters degree (by thesis), a coursework Master of Engineering degree in Local Government Engineering, and the recently developed Graduate Diploma in Local Government Engineering. Doctoral programs are also being developed.

The School has approximately 600 undergraduate and postgraduate students, an academic staff establishment of 27 and 16 support staff. It has a well established and equipped laboratory complex for teaching and research work.

The Associate Head will work with the Head of School in managing the activities of the School and in providing leadership and academic guidance in the development of the School's activities. Applicants must have Civil Engineering qualifications and have a higher degree, preferably at doctoral level. Applicants should have significant professional experience in one or more areas of civil or structural engineering. Proven communication skills are essential and teaching experience at the tertiary level is highly desirable. A record of contribution to the profession through appropriate research and publications would be an advantage.

In reply please quote reference no: 85/131

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

ASSOCIATE HEAD

The School of Humanities and Social Sciences, together with the Media Centre, form the Faculty of Humanities and Social Sciences. The School's major programs are the B.A. (Communication) with an annual intake of about 150 students. The B.A. offers majors in "Studies" (in Media Studies, Textual Studies, Social and Political Studies, Screen Studies) and in "Production" (in Journalism, Film, Video, Radio, Writing, Advertising, Public Relations). The School offers a graduate studies programmes, and is in the process of strengthening this area of work. The awards offered are a Graduate Diploma (Communication) and a M.A. in Media. The Institute is developing arrangements for offering doctoral programmes.

In addition, the School offers courses to students undertaking degree work in all other Schools in the Institute. About 25 percent of the students taught by the School are enrolled in awards in other Faculties.

The School strongly encourages the integration of theory and practice in all courses offered, and within its awards overall. Members of staff are active in research, publication, and in (media) production in all the areas mentioned. The Faculty is developing active links with community groups and institutions such as Tranby Aboriginal College and local high schools.

The Associate Head will work together with the Head of School and Dean in taking a significant role in administration in the School. It is expected that the Associate Head will have strong experience in teaching and administration, and to have made major contributions to any one of the areas of the School's teaching, research, or production. Applicants should possess a higher degree preferably at doctoral level.

In reply please quote reference no. 85/134

The closing date for applications for both positions will be 23 August 1985.

The President of the Institute will be in London during September 1985 for selected interviews.

CONDITIONS OF APPOINTMENT
SALARY $A51,185 p.a.

Appointment may be made with tenure (i.e. continuous employment until the age of retirement). Alternatively, the opportunity exists to be appointed by way of a three (3) year fixed term contract. Appointment is subject to a medical examination.

Overseas appointees will be expected to enter into a service agreement to remain with the Institute for a minimum of three (3) years. Fares and a contribution towards removal expenses are provided for overseas appointees. A housing loan scheme is also available. With the consent of Council, academic staff are permitted to undertake limited consulting work.

Applications should include full details of academic and professional background. The names and addresses of three referees, from who confidential reports may to obtained, should be included.

Details of conditions of employment and further information regarding these positions can be obtained from:

The Director
NSW Government Office
66 Strand
LONDON WX2N 5LZ

2066